

***I-405***

***CORRIDOR PROGRAM NEPA/SEPA DRAFT EIS***

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**DRAFT UPLAND VEGETATION,  
HABITAT, AND WILDLIFE EXPERTISE  
REPORT**

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**I-405 CORRIDOR PROGRAM**  
**Draft Upland Vegetation, Habitat, and**  
**Wildlife Expertise Report**

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# Draft Upland Vegetation, Habitat, and Wildlife Expertise Report

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## SUMMARY

This discipline report is an assessment of the potential impacts of four proposed Action Alternatives and a No Action Alternative for the I-405 Improvements Project on upland vegetation, habitat, and wildlife. The analysis is conducted at a programmatic level to contribute to the decision making process for the project.

The majority of the study area falls within developed commercial and residential areas. Landscaped vegetation has replaced most of the native vegetation in the immediate vicinity of the proposed projects. The proposed projects will commonly remain within the existing road right-of-way (ROW), which is typically vegetated with scattered trees, invasive shrubs, and/or mowed grass, is highly disturbed from past road construction and maintenance activities, and offers low habitat value to wildlife, as a result. Although these areas provide important habitat for some species (such as feeding areas for red-tailed hawks (*Buteo jamaicensis*), overall, the impacts to wildlife from the alternatives would typically be insignificant given the present quality of habitat that persists along the corridors that would be impacted by future transportation improvements.

However, each of the alternatives, including the No Action Alternative, does encounter habitats designated as priority under the Washington State Department of Fish and Wildlife (WDFW) Priority Habitat and Species (PHS) program (WDFW, 2000). Table S.1 provides a summary of the number of priority habitats encountered by each of the alternatives. Wetlands are in the calculation of the number of priority habitats encountered, but are excluded from the analysis because they are discussed in the *I-405 Corridor Program Draft Wetlands Expertise Report* (DEA, 2001). As the proposed projects will typically be accommodated in the existing road ROW, it is assumed that direct impacts to priority habitat will usually be avoidable. Increased levels of disturbance and wildlife mortality from greater traffic volumes will perhaps have the greatest impact of wildlife. Other possible impacts include fragmentation of habitat and further restrictions along wildlife corridors.

Table S.2 identifies the priority habitats encountered by the alternatives expressed in linear feet. Area of habitat impact cannot be evaluated at this level of analysis. Therefore, the linear distance that each priority habitat is traversed by a project that will require construction outside of the existing road fill prism was calculated as an index for impact comparison.

In four of the five alternatives, projects come within 0.3 mile of two bald eagle (*Haliaeetus leucocephalus*) nests. The bald eagle is a federally listed species. As the Action Alternatives remain within the existing ROW within the bald eagle territories, they will not require the clearing or alteration of potential bald eagle habitat, nor will existing noise levels be notably increased. Timing restrictions on construction could be implemented to protect key bald eagle nesting and wintering habitats.

**Table S.1: Summary of Potential Impacts to Priority Habitats in the Study Area**

Alternative	Priority Habitats Encountered	Impacts
No Action Alternative	19 projects encounter 42 WDFW priority habitat areas.	The No Action Alternative would encroach on a total of 444,544 linear feet of roadside habitat. The Alternative will result in no impacts to WDFW priority riparian habitat. The Alternative could affect 12,200 linear feet of urban natural open space, 3,600 linear feet of habitat within bald eagle territories and would encroach upon one bald eagle nest due to arterial and HOV expansions. Possible impacts include habitat loss and disturbance to species that use road ROW. Project activities would occur as close as 0.23 mile to a bald eagle nest.
1	39 projects encounter 84 WDFW priority habitat areas.	In addition to the impacts identified under the No Action Alternative, Alternative 1 would encroach on a total of 597,397 linear feet of roadside habitat. Alternative 1 could impact 12,340 linear feet of riparian habitat, 30,900 linear feet of urban natural open space, 36,500 linear feet of habitat within bald eagle territories, and one additional bald eagle nest would be encroached upon due to I-405 expansions, HOV additions, and the new High-Capacity Transit (HCT) system. Possible impacts in addition to those for the No Action Alternative include additional loss of habitat along ROWs, habitat fragmentation (impacts to wildlife corridors), additional disturbance, and encroachment on a second bald eagle nesting territory.
2	65 projects encounter 136 WDFW priority habitat areas.	In addition to the impacts identified under the No Action Alternative, Alternative 2 would encroach on a total of 1,514,076 linear feet of roadside habitat. Alternative 2 could impact 20,900 linear feet of riparian habitat, 36,760 linear feet of urban natural open space, 50,560 linear feet of habitat within bald eagle territories, and one additional bald eagle nest would be encroached upon due to I-405/arterial expansions, HOV additions, and the new HCT system. Possible impacts include greater losses of habitat located along ROW and increased potential for habitat fragmentation over Alternative 1. Greater impacts to bald eagle territories as than those under Alternative 1 would occur.
3	60 projects encounter 124 WDFW priority habitat areas.	In addition to the impacts identified under the No Action Alternative, Alternative 3 would encroach on a total of 1,429,435 linear feet of roadside habitat. Alternative 3 could impact 13,560 linear feet of riparian habitat, 40,100 linear feet of urban natural open space, 37,660 linear feet of bald eagle territory, and one additional bald eagle nest would be encroached upon due to I-405/arterial expansions. Possible impacts include greater losses of urban open spaces and than under Alternative 2. Impacts to riparian areas and encroachment on bald eagle territories would be less than those under Alternative 2.
4	54 projects encounter 129 WDFW priority habitat areas.	In addition to the impacts identified under the No Action Alternative, Alternative 4 would encroach on 1,679,977 linear feet of roadside habitat. Alternative 4 could impact 11,120 linear feet of riparian habitat, 21,700 linear feet of urban natural open space, and 46,860 linear feet of habitat within bald eagle territories due to I-405 and arterial expansions. Possible impacts include losses of urban open space and riparian habitat comparable to those identified under Alternative 1, and a smaller loss of rural land area than all of the other alternatives. About 10,300 linear feet of encroachment upon eagle nesting territories in addition to that identified under the No Action Alternative would occur under Alternative 4.

**Table S.2: Comparison of Lineal Impacts to Priority Habitat (in linear feet)**

Habitat	No Action Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Bald Eagle Territory	3,600	36,500	50,560	37,660	46,860
Urban Natural Open Space	12,200	30,900	36,760	40,100	21,700
Riparian Area	0	12,340	20,900	13,560	11,120
Total	15,800	79,740	108,220	91,320	79,680

\* Quantities under Alternatives 1, 2, 3, and 4 are in addition to those identified under the No Action Alternative.



**Table S.3: Summary of Potential Impacts and Possible Mitigation Measures**

<b>Summary of Findings</b>		
<b>Element</b>	<b>Environmental Consequences</b>	<b>Summary of Mitigation</b>
<b>Section 3.7 Wildlife, Habitat, and Upland Threatened and Endangered Species</b>  No Action Alternative	<p>For all alternatives, priority habitats identified within the analysis area include freshwater wetlands, riparian zones, bald eagle territory, great blue heron habitat, pileated woodpecker habitat, waterfowl concentration areas, and urban natural open space. Much of the urbanized portion of the study area is inhabited by species typical of developed areas. The prevalence of development and landscape maintenance activities in these areas has resulted in the predominance of species adapted to degraded and disturbed habitats. The WDFW (2000) identifies five bald eagle territories, five patches of pileated woodpecker habitat, one occurrence of osprey habitat (a State Monitor species) and one area for western pond turtles (State Endangered, Federal Species of Concern), and a great blue heron (a WDFW Priority species) rookeries. Most of the habitat area encountered falls within ROW. These areas typically have low habitat value to wildlife and are generally highly disturbed. Wildlife could occasionally occupy these areas; however, such occurrence is likely to be short-term.</p> <p>For the No Action Alternative, the alternative could affect up to 3,600 linear feet of habitat located within bald eagle territories and 12,200 urban natural open space, and no riparian habitat. The No Action Alternative is not expected to have substantial adverse impacts on upland vegetation, habitat, wildlife, or endangered/threatened species. Most of the project area is at or near buildout and the opportunity for future development is limited.</p>	<ul style="list-style-type: none"> <li>• Timing restrictions on construction could be implemented to protect bald eagle nesting habitats.</li> <li>• Providing wildlife access corridors under roadways is a measure that can reduce the affects of habitat fragmentation by maintaining connectivity between habitats.</li> <li>• Revegetation of roadsides and construction zones with native plants can offset loss of habitat from construction.</li> <li>• Other construction mitigation measures could also be employed. Needs and measures would be evaluated at the project level.</li> </ul>
Alternative 1	Alternative 1 could affect 30,900 linear feet of urban natural open space resulting in habitat loss from the installation of the HCT System and disturbance to the periphery of habitats. The alternative could impact 36,500 linear feet of bald eagle territory, 10 times that of the No Action Alternative. Construction would occur within 0.3 mile of one bald eagle nest	Same as No Action Alternative
Alternative 2	Alternative 2 would encounter 36,760 linear feet of urban natural open space in addition to what would be impacted in the No Action Alternative, could affect 50,560 linear feet of habitat within bald eagle territories, and would impinge on 20,900 linear feet of riparian habitat.	Same as No Action Alternative
Alternative 3	Alternative 3 could affect 40,100 linear feet of urban natural open space in addition to that impacted in the No Action Alternative, could impact 37,660 linear feet of bald eagle territory (one bald eagle nest could experience increased noise disturbance), and could encroach on 13,560 linear feet of riparian habitat.	Same as No Action Alternative
Alternative 4	Alternative 4 encounters 21,700 linear feet of urban natural open. In addition to the bald eagle impacts identified under the No Action Alternative, Alternative 4 could affect 46,860 linear feet of bald eagle territory and encroach on 11,120 linear feet of riparian habitat	Same as No Action Alternative

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# 1. INTRODUCTION

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## 1.1 Report Organization and Scope

This report presents an evaluation of the potential impacts of five alternative approaches to traffic and transportation-related improvements in the Interstate 405 (I-405) corridor on upland habitats and wildlife.

## 1.2 Overview of I-405 Corridor Program

Construction of the 30-mile Interstate 405 (I-405) freeway in the early 1960s as a bypass around Seattle for Interstate 5 (I-5) traffic also opened the rural, agricultural countryside east of Lake Washington to commercial and residential development. Interstate 405 currently ranges from six to ten lanes along the 30-mile corridor, and it is the designated military route through Seattle, as Interstate 5 was deemed too constricted (see Figure 1.1). Construction of the Evergreen Point (SR 520) floating bridge in 1963 further set the stage for rapid and substantial changes on the Eastside.

Today, I-405 has changed dramatically from a Seattle bypass to become the region's dominant north-south travel corridor east of I-5. More than two-thirds of the total trips on I-405 begin and end in the corridor itself. The remaining third have strong ties with the communities along SR 167 to the south of the study area, and with developing areas to the east within the urban growth area of King County. However, as the regional importance of the I-405 corridor has grown, it has become increasingly evident that worsening traffic congestion within the corridor has the potential to create serious adverse effects on personal and freight mobility, the environment, the state and regional economy, and the quality of life.

In response to these and other concerns, the Washington State Department of Transportation (WSDOT) has joined with the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), Central Puget Sound Regional Transit Authority (Sound Transit), King County, and local governments to develop strategies to reduce traffic congestion and improve mobility in the I-405 corridor from Tukwila in the south to Lynnwood in the north.

The I-405 Corridor Program is a cooperative effort involving over 30 agencies that have responsibilities for planning, regulating, and implementing transportation improvements in the 250+ square-mile corridor. The decision to be made through the combined National Environmental Policy Act/State Environmental Policy Act EIS policy is to identify the best mix of modal solutions, transportation investments, and demand management to improve movement of people and goods throughout the I-405 corridor, reduce foreseeable traffic congestion, and satisfy the overall program purpose and need.

The programmatic I-405 Corridor Program EIS focuses on broad corridor-wide issues related to travel mode and transportation system performance. This is consistent with the program objective to enable program decisions focusing on mode choice, corridor selection, general location of improvements, and how combinations of improvements may function

together as a system to solve corridor-wide transportation problems. A programmatic level of analysis is appropriate and necessary at this early stage in the decision-making process, when many project-level design details would not be meaningful in evaluating effects on mobility and environmental quality across such a large area. Subsequent environmental analysis, documentation, and review will be prepared to enable decisions regarding site-specific, project-level details on alignments, high-capacity transit technology, project impacts, costs, and mitigation measures after a preferred alternative has been identified.

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### 1.3 Need For the Proposed Action

The need identified for the I-405 Corridor Program is:

To improve personal and freight mobility and reduce foreseeable traffic congestion in the corridor that encompasses the I-405 study area from Tukwila to Lynnwood in a manner that is safe, reliable, and cost-effective.

The following sub-sections expand upon the issues and trends that influence the need for the proposed action, particularly with respect to travel demand and traffic congestion, and the attendant effects on freight mobility and safety.

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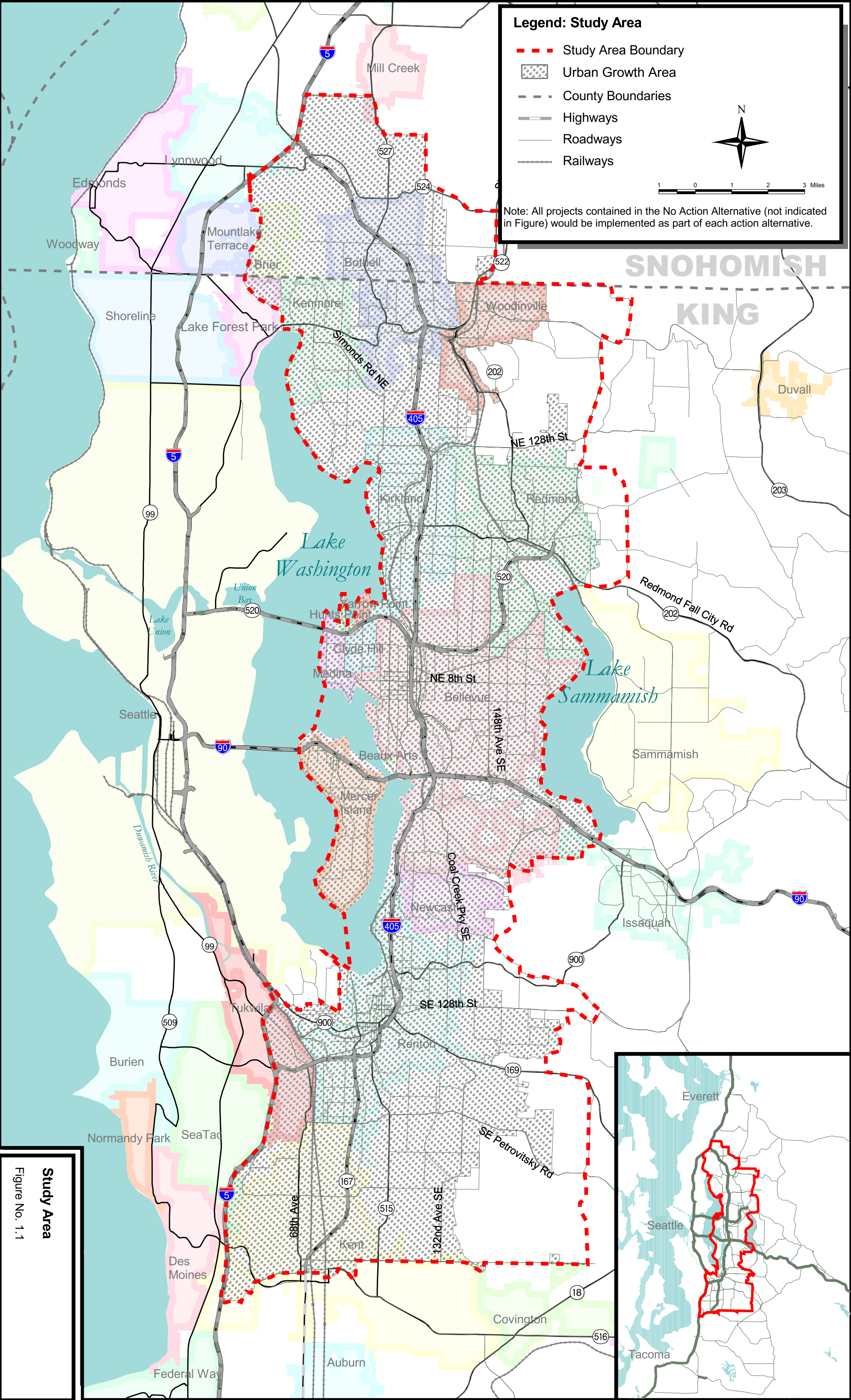
#### 1.3.1 Growth in Travel Demand

Between 1970 and 1990, communities in the I-405 corridor grew much faster than the central Puget Sound region as a whole. During the 20-year period, employment in the study area increased over 240 percent from 94,500 to 323,175 and population grew nearly 80 percent from 285,800 to 508,560.

Population and employment continued to grow during the 1990s; in particular, employment grew at an annual rate of almost 3.5 percent. Looking ahead, growth in the corridor through 2020 likely would keep pace with the robust rate of growth in the Puget Sound region. The I-405 corridor population and employment is forecast to increase by more than 35 percent. This means that by 2020 an additional 144,000 people are expected to be employed within the study area, while the population is expected to reach approximately 765,000, an increase of more than 200,000 people from 1997.

##### 1.3.1.1 Travel Demand

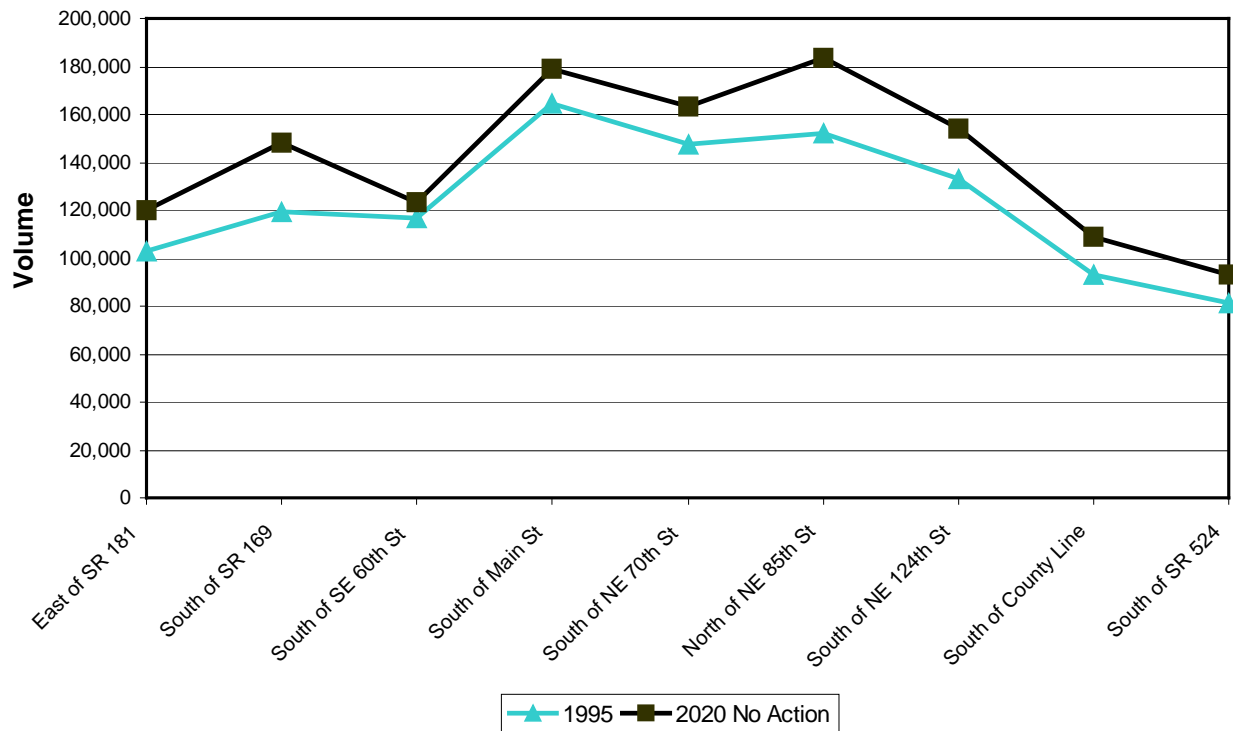
Travel demand trends in the I-405 corridor match these population and employment trends: between 1995 and 2020, person trips are generally expected to increase more than 50 percent. Travel demand in terms of traffic volume is heaviest within the study area on I-405 itself, with the freeway carrying 60 to 70 percent of the total daily traffic volumes passing through the study area in the north-south direction. Conversely, the arterial streets carried 30 to 40 percent. In the east-west direction, the arterial street system plays an important role, with volumes almost equally distributed between the arterial streets and the two east-west freeways, I-90 and SR 520. In 1999, the highest volumes on I-405 occurred in the vicinity of NE 8th Street in Bellevue: about 210,000 vehicles per day. I-405 at SR 900 in Renton typified traffic volumes on I-405 south of I-90, carrying about 138,000 vehicles per day.



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WSDOT's most recent traffic count data (1999) show the lowest I-405 traffic volumes, 95,000 vehicles per day, in the north end between SR 522 and I-5 at Swamp Creek, and the highest, 210,000 vehicles per day, between I-90 and SR 520. The section south of Kirkland to SR 520 carries 185,000 to 195,000 vehicles per day, and the section south of I-90 typically carries 150,000 vehicles per day. Figure 1.2 shows these findings. This variation in traffic volumes is the result of different travel demands within the corridor as well as the available capacity on the freeway.

**Figure 1.2: Daily Traffic Volumes at Selected Locations on I-405**



Source: PSRC Model

### 1.3.1.2 Mode Split

Single-occupant vehicles (SOVs) generate the majority of traffic demand: up to 78 percent of work trips within the I-405 study area are SOVs. High-occupancy vehicles (HOVs) and transit users comprise around 20 percent of all work trips within the study area. SOV use in the study area is higher than the average for King County, while HOV and walk/bike percentages are lower. These results reflect the more suburban character of the I-405 study area.

The segment of I-405 with the highest peak-period transit ridership is between SR 520 and the Totem Lake area (2,100 riders). Transit ridership near each of the northern and southern termini of I-405 is less than 1,000 riders during peak periods. To encourage more transit demand, Sound Transit's Regional Express program is currently in the planning and early design stages of new park-and-ride lots, transit centers, and direct access ramps, including

large-scale improvements to several I-405 interchanges. King County Metro and Sound Transit's evolving bus transit services concept for the I-405 study area would serve multiple activity centers, instead of the traditional Seattle/Bellevue hub-and-spoke design.

### 1.3.1.3 Trip Characteristics

Travel demand on I-405 appears greater for longer trips; along several sections of I-405, the average vehicle trip length exceeds 25 miles, roughly three times the study area average. Forecasts for 2020 show the freeway attracting even more long trips, with over 50 percent of all trips on I-405 exceeding 30 miles in length.

Today in the study area, only 20 percent of the total daily person-trips are home-based work trips, that is, commute trips directly to and from work. Thirty-nine percent of daily person-trips are other home-based trips (e.g., shopping, recreational, personal business) and 28 percent are non-home-based trips (e.g., traveling from work to daycare or shopping). School (2 percent) and commercial vehicle trips (11 percent) make up the rest. The relative shares of each trip purpose are expected to be similar in 2020. The fairly small share of trips that are purely to and from work reflects the fact that people are increasingly linking their trips, stopping on the way home to shop, pick up children, etc. (which are considered non-home based trips). This poses a challenge for transit and carpool/vanpool use.

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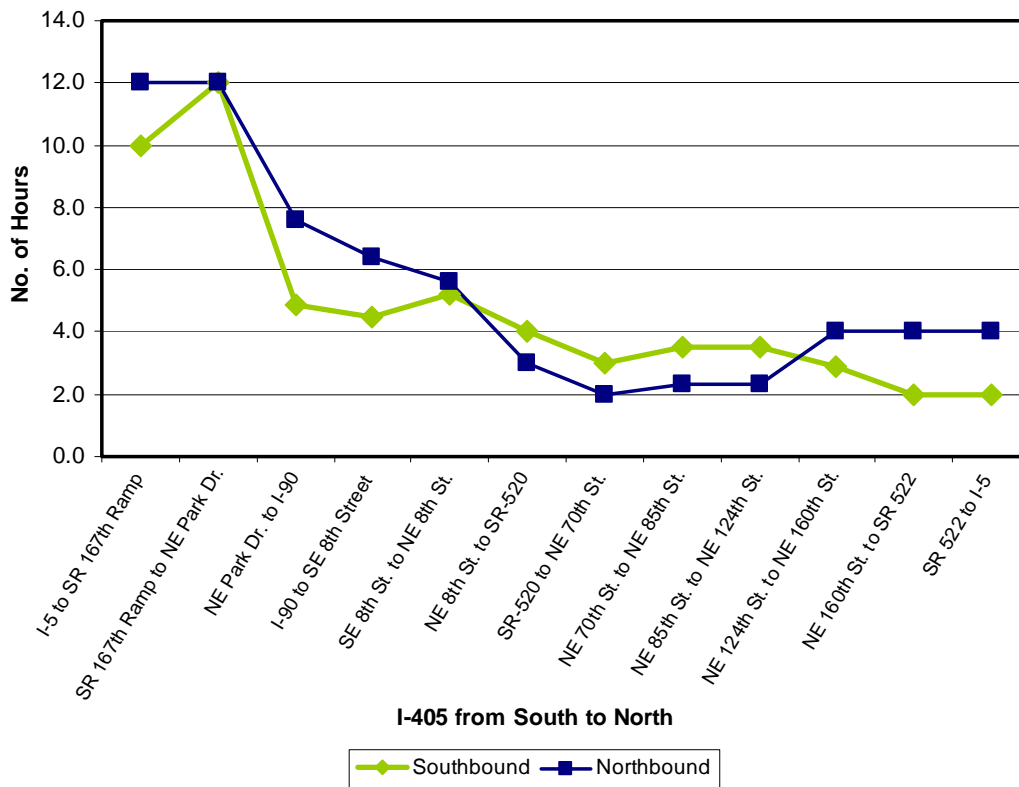
## 1.3.2 Traffic Congestion and Reliability

### 1.3.2.1 Traffic Congestion

Heavy travel demand and frequent traffic incidents contribute to substantial traffic congestion on I-405, although they are not the only causes. Traffic congestion along I-405 is widespread during the morning and afternoon peak periods and has spread to surrounding time periods. A useful way to examine daily congestion is to look at the number of hours during which a facility is congested. For purposes of this analysis, "congestion" on the freeway is defined as travel speeds below 45 mph. Figure 1.3 illustrates the severity of traffic congestion that was present in 1997 at twelve points along I-405. The duration of traffic congestion in the northbound and southbound directions is roughly the same. The most congested area of I-405 is from I-5 in Tukwila to NE Park Drive in the city of Renton. Traffic congestion for 10-12 hours per day is typical in this section. For most other sections, traffic congestion lasts 2 to 7 hours per day.



Figure 1.3: Hours of Traffic Congestion on I-405



Source: PSRC Model, Mirai Associates

The average daily “volume per freeway lane” is quite consistent throughout the corridor, which demonstrates that traffic volumes alone do not cause congestion. The most likely reason for the high hours of congestion in the south end of I-405 relates to freeway “friction” caused by curves (e.g., the “S-Curves”), grades (e.g., Kennedydale Hill), and complex interchanges at I-5 and SR 167.

Traffic congestion on I-405 often results in blockage of mainline flows throughout the day by vehicles that cannot get onto the ramps at such locations as SR 167, I-90, SR 520, and SR 522. The spill-over traffic from the ramps has created substantial mainline traffic congestion and operational hazards throughout the I-405 corridor. This congestion also causes traffic to back up onto local arterials.

### 1.3.2.2 Travel Time

Variation in congestion causes travel times to vary widely within the I-405 study area, depending upon the origin and destination of the trip and the mode of travel being used. Table 1.1 summarizes typical P.M. peak-hour travel times (1995 data) for a variety of study area trips, averaging 23 miles in length. The times are for door-to-door travel, including in-vehicle time and access to the trip’s origin and destination. The fastest trips are typically by non-transit HOV mode, particularly for longer trips along I-405 that can take full advantage of the HOV lane system. Traveling along the full length of I-405 during the peak period can



take longer than one hour for general traffic. Transit travel times are often at least twice as long as driving the equivalent distance, especially for people walking to the transit stops. Transit travel times are 10 to 15 percent faster for park-and-ride access trips compared with walk access transit trips. This is partially due to shorter wait times at park-and-ride locations created by more frequent transit service.

**Table 1.1: Comparison of Typical I-405 Study Area P.M. Peak Hour Travel Times by Mode**

Trip	Distance (miles)	General Traffic Travel Time (min)	HOV Travel Time (min)	Transit Travel Time Walk Access (min)	Transit Travel Time Park-and-Ride Access (min)
Bellevue Central Business District (CBD) to Federal Way/Kent	25	56	40	95	83
Renton to Mill Creek	33	65	49	125	105
Bellevue CBD to Edmonds/Lynnwood	19	42	38	85	76
Tukwila/SeaTac to Redmond/Overlake	23	49	39	116	103
Issaquah/Cougar Mt. to Bothell/Kenmore	23	46	39	108	98
Issaquah/Cougar Mt. to Federal Way/Kent	23	56	47	132	118

Source: Puget Sound Regional Council (PSRC) Model - 1995 base year

### 1.3.2.3 Travel Time Reliability

Not only do travel times vary by segment within the I-405 study area, they are unpredictable from day to day. The reliability of travel times can be defined in terms of deviation from a mean travel time when travelers in the same transportation mode repeat their trips with identical travel routes starting at a same time of day. A transportation system provides a good level of service when travelers experience the same travel time every time or with little deviation.

The Washington State Transportation Center (TRAC) conducted research to measure the performance of the freeway system in the Central Puget Sound area, which includes the travel time reliability measure for general traffic along I-405. The most recent analysis results are described in the report entitled Central Puget Sound Freeway Network Usage and Performance, 1999 Update, Volume 1 (Washington State Transportation Center and Washington State Department of Transportation). The following summarizes the findings of the travel time reliability data prepared by the TRAC for 1999.

- Existing travel time reliability for the vehicles traveling *from Tukwila to Bellevue CBD* is very poor during the mid-day and evening periods and extremely poor during the morning peak period.
- Existing travel time reliability for the vehicles traveling *from Bellevue CBD to Tukwila* is poor throughout the day (from 6:00 A.M. to 6:30 P.M.). In particular, the travel time reliability during the afternoon peak period is very poor and the traffic flows in the period are highly unstable.

- > Existing travel time reliability for the trips *from Bellevue CBD to SR 522* is relatively poor during the P.M. peak period. Travelers starting trips during other periods have experienced good travel time reliability.
- > Existing travel time reliability problems for the trips *from SR 522 to Bellevue CBD* are confined to the A.M. peak period. The problem is worst at 8 A.M.

Traffic incidents along the freeway corridor are major causes of the reliability problems. The State's Incident Management Program was implemented to help improve overall travel time reliability within the I-405 corridor. Reliability of travel in the HOV lanes is considerably better than in the general purpose lanes. HOV travel times typically operate from 15-20 miles per hour faster than the adjacent general purpose lanes during congested time periods. HOV travel time reliability suffers when there is a major incident along I-405 with stop-and-go conditions. In these situations, HOV speeds drop and the level of HOV lane violations tends to increase.

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### 1.3.3 Freight Mobility

The decreasing reliability of the regional transportation system, including I-405, is creating a serious problem for regional freight mobility. The central Puget Sound region serves as an important freight gateway to Pacific Rim countries. Automobiles, forest and agricultural products, communications and computer equipment, and hundreds of other items continuously move over the region's roadways and railroads, to seaports and airports. Substantial delay as a result of transportation system congestion is costing the region's businesses nearly \$700 million a year, according to information from WSDOT. The cost to the freight industry itself is estimated to be around \$200 million per year.

Products shipped by truck across I-90 from Eastern Washington reach points north and south of Seattle via I-405. At the same time, I-405 serves as a heavily used transport corridor for local freight delivery to and from the cities along the corridor. Smaller trucks, such as delivery vans, account for many freight trips within the region, and these trips could benefit greatly from roadway improvements to I-405.

Interstate 405 continues to be used by freight carriers as an alternative to the preferred I-5 route when severe congestion occurs on I-5 in downtown Seattle near the Convention Center (one of the most substantial freight mobility bottlenecks in the region). I-405 also provides ready access to the distribution centers along SR 167 in the Kent Valley. Volumes of heavy trucks on the portion of I-405 south of I-90 are about double those along the northern portion due to truck movements to and from the Kent Valley. Truckers identify congestion at the SR 167/I-405 interchange as one of the worst transportation system problems in the region, and the trucking community supports improvements to this major truck corridor interchange as one of its top priorities.

The latest data indicate that the central Puget Sound region's roadways carry approximately 1.2 million truck trips each day, with about 70 percent of those trips occurring within King County. I-405 carries a substantial portion of those trips, moving up to 90 percent of the total truck origins and destinations in east King County. Truck volumes along I-405 are expected to grow by 50 percent by the year 2010. Reductions in system reliability and resulting higher transportation costs increase the cost of manufacturing and distributing goods, while adversely affecting economic vitality and job creation. Accessibility to markets

becomes increasingly difficult with worsening traffic congestion and delay. Improvements to the I-405 corridor could provide tangible economic benefits for all of Washington State.

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#### 1.3.4 Safety

Twenty-nine of the 280 high accident locations in King and Snohomish counties are located along I-405. Most high accident locations are associated with ramps connecting to I-405, including those at SR 181 (Interurban), SR 169, SR 900 (Sunset and Park), Coal Creek Parkway, SE 8th Street, NE 4th Street, NE 8th Street, SR 908 (NE 85th Street), NE 116th Street, NE 160th Street, and SR 527. The portion of I-405 north of SR 527 is identified as a high accident corridor due to the relatively higher speeds and more serious injuries associated with these accidents.

Over the three-year period from 1994 to 1996, a total of 5,580 accidents was reported along I-405. Most collisions occurred on the mainline freeway, with about one-fourth of all accidents occurring on the ramps, collector-distributor roads, and cross streets at the interchanges. About half of all collisions involve property damage only, while half involve injuries or fatalities. This injury pattern applies equally to the mainline and ramp segments; however, all seven fatalities reported in this period occurred on the I-405 mainline.

The overall accident rate along I-405 (1.6 accidents per million vehicle miles) is about midrange compared to other freeways in King County. The rates are lower than the average rate for all state highways (1.88 accidents per million vehicle miles, or MVM) and for state highways in King County (2.27 accidents per MVM). On comparable local freeways, I-5 and SR 520 both exhibit accident rates of about 2.0 accidents per MVM. WSDOT's ramp metering program on I-405 has been very successful. Rear-end and sideswipe accidents have decreased by 60 percent to 70 percent near locations with ramp meters.

For state roads serving as surface arterial routes, accident rates typically fall into the range of three to five accidents per MVM. This rate is related to the presence of traffic signals, driveways, pedestrians, and bicyclists, and lower levels of access control. These accident rates are typical of urban arterial facilities. Accident rates for selected arterial and collector routes in the primary study area generally range between two and four accidents per MVM, with some streets higher. These streets also experience higher accident rates due to the presence of signalized intersections, driveways, and other conflicts.

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#### 1.4 Purpose of the Proposed Action

The purpose of the proposed action is:

To provide an efficient, integrated, and multi-modal system of transportation solutions within the corridor that meets the need in a manner that:

- Provides for maintenance or enhancement of livability for communities within the corridor;
- Provides for maintenance or improvement of air quality, protection or enhancement of fish-bearing streams, and regional environmental values such as continued integrity of the natural environment;

- Supports a vigorous state and regional economy by responding to existing and future travel needs; and
- Accommodates planned regional growth.



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## 1.5 Study Area

The study area for the I-405 Corridor Program defines the general boundaries of the I-405 corridor and encompasses the essential improvements proposed within each alternative. It encompasses an area of approximately 250 square miles that extends on both sides of I-405 between its southern intersection with I-5 in the city of Tukwila and its northern intersection with I-5 in Snohomish County. This area includes the cities of Tukwila, Renton, Newcastle, Bellevue, Redmond, Kirkland, Woodinville, and Bothell, as well as portions of the cities of Issaquah, Kenmore, Kent, Lynnwood, and Mercer Island and adjacent unincorporated areas of King and Snohomish counties.

For purposes of environmental analysis, documentation, and review, potential substantial adverse effects are identified and evaluated wherever they are reasonably likely to occur in the region.

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## 2. DESCRIPTION OF ALTERNATIVES

Four programmatic action alternatives and a No Action Alternative are evaluated in the Environmental Impact Statement (EIS). Each of the four action alternatives is a combination of multi-modal transportation improvements and other mobility solutions packaged to work together as a system. Each package demonstrates a unique emphasis in response to the purpose and need for the I-405 Corridor Program. The improvements and mobility solutions that comprise each action alternative are assembled from the following major elements:

- Transportation demand management (TDM)
- Regional transportation pricing
- Local transit service (bus and other technologies)
- Bus rapid transit (BRT) operating in improved-access high-occupancy vehicle lanes on I-405, I-90, and SR 520
- Fixed-guideway high-capacity transit (HCT) operating with physical separation from other transportation modes
- Arterial high-occupancy vehicle (HOV) and bus transit priority improvements
- HOV express lanes on I-405 and HOV direct access ramps
- Park-and-ride capacity expansions
- Transit center capacity improvements
- Basic I-405 safety and operational improvements
- I-405 general purpose lanes
- I-405 collector-distributor lanes
- I-405 express lanes
- SR 167 general purpose lanes
- Capacity improvements on freeways connecting to I-405
- Planned arterial improvements
- Capacity improvements on north-south arterials
- Arterial connections to I-405
- Pedestrian and bicycle improvements
- Intelligent transportation system (ITS) improvements
- Truck freight traffic enhancements

These elements are described in greater detail in Appendix A (I-405 Corridor Program - Major Elements of Alternatives). Table 2.1 shows the system elements contained in each of the alternatives.

**Table 2.1: System Elements Contained in Each Alternative**

	<u>No Action Alternative</u>	<u>Alternative 1</u>  HCT/TDM Emphasis	<u>Alternative 2</u> Mixed Mode with HCT/Transit Emphasis	<u>Alternative 3</u>  Mixed Mode Emphasis	<u>Alternative 4</u>  General Capacity Emphasis
Committed and funded freeway projects	X	X	X	X	X
Committed and funded HOV projects	X	X	X	X	X
Committed and funded arterial projects	X	X	X	X	X
Park-and-ride expansions included in No Action Alternative	X	X	X	X	X
Transit center improvements included in No Action Alternative	X	X	X	X	X
Transportation Demand Management (TDM)	X	X	X	X	X
Expanded TDM regional congestion pricing strategies		X			
Expand transit service by 100% compared to K. Co. 6-year plan		X	X	X	
Expand transit service by 50% compared to K. Co. 6-year plan					X
Physically separated, fixed-guideway HCT system		X	X		
Bus rapid transit operating in improved access HOV lanes				X	
Arterial HOV priority for transit		X	X	X	
HOV direct access ramps on I-405			X	X	X
Additional park-and-ride capacity expansion		X	X	X	
Additional transit center improvements		X	X	X	
Basic I-405 safety and operational improvements		X	X	X	X
I-405/ SR 167 interchange ramps for all major movements			X	X	X
One added general purpose lane in each direction on I-405			X		X
Two added general purpose lanes in each direction on I-405				X	

**Table 2.1: (continued) System Elements Contained in Each Alternative**

	<u>No Action Alternative</u>	<u>Alternative 1</u>  HCT/TDM Emphasis	<u>Alternative 2</u> Mixed Mode with HCT/Transit Emphasis	<u>Alternative 3</u>  Mixed Mode Emphasis	<u>Alternative 4</u>  General Capacity Emphasis
Two express lanes added in each direction on I-405 <sup>a</sup>					X
Widen SR 167 by one lane each direction to study area boundary			X	X	X
Improved capacity of freeways connecting to I-405			X	X	X
Planned arterial improvements			X	X	X
Complete missing segments of major arterial connecting routes <sup>b</sup>				X	
Expand capacity on north-south arterials <sup>b</sup>					X
Upgrade arterial connections to I-405 <sup>b</sup>			X	X	X
Pedestrian / bicycle connections and crossings of I-405		X	X	X	X
Intelligent transportation system (ITS) improvements		X	X	X	X
Truck freight traffic enhancements		X	X	X	

<sup>a</sup> To be studied as general purpose lanes and as managed high-occupancy/toll (HOT) lanes.

<sup>b</sup> With jurisdictional approval.

## 2.1 No Action Alternative

The No Action Alternative includes the funded highway and transit capital improvement projects of cities, counties, Sound Transit, and WSDOT. These projects are already in the pipeline for implementation within the next six years, and are assumed to occur regardless of the outcome of the I-405 Corridor Program. For this reason, they are referred to collectively as the No Action Alternative.

Under the No Action Alternative, only limited expansion of state highways would occur. No expansion of I-405 is included; however, a new southbound I-405 to southbound SR 167 ramp modification would be constructed. Approximately 15 arterial widening and interchange improvement projects would be implemented within the study area by local agencies. Short-term minor construction necessary for continued operation of the existing transportation facilities would be accomplished, and minor safety improvements would be constructed as required.

It is assumed that Phase I of Sound Transit's regional transit plan would be completed. Approximately 36 HOV direct access projects, arterial HOV improvements, park-and-ride expansions, and transit center enhancements would be implemented in the study area as part



of the No Action Alternative. Bus transit service levels by the 2020 horizon year are based upon the Puget Sound Regional Council (PSRC) Metropolitan Transportation Plan. A 20 percent increase in bus transit service hours above the current King County 6-year plan level is assumed by year 2020. Parking costs are expected to increase due to market forces. Additional urban centers and major employment centers within the study area are also assumed to implement parking charges by 2020.

These baseline transportation improvement projects are, or will be, the subject of separate and independent project-specific environmental analysis, documentation, and review. Their direct impacts are not specifically evaluated by the I-405 Corridor Program. However, the secondary and cumulative impacts of these projects are addressed as part of the analyses contained herein.

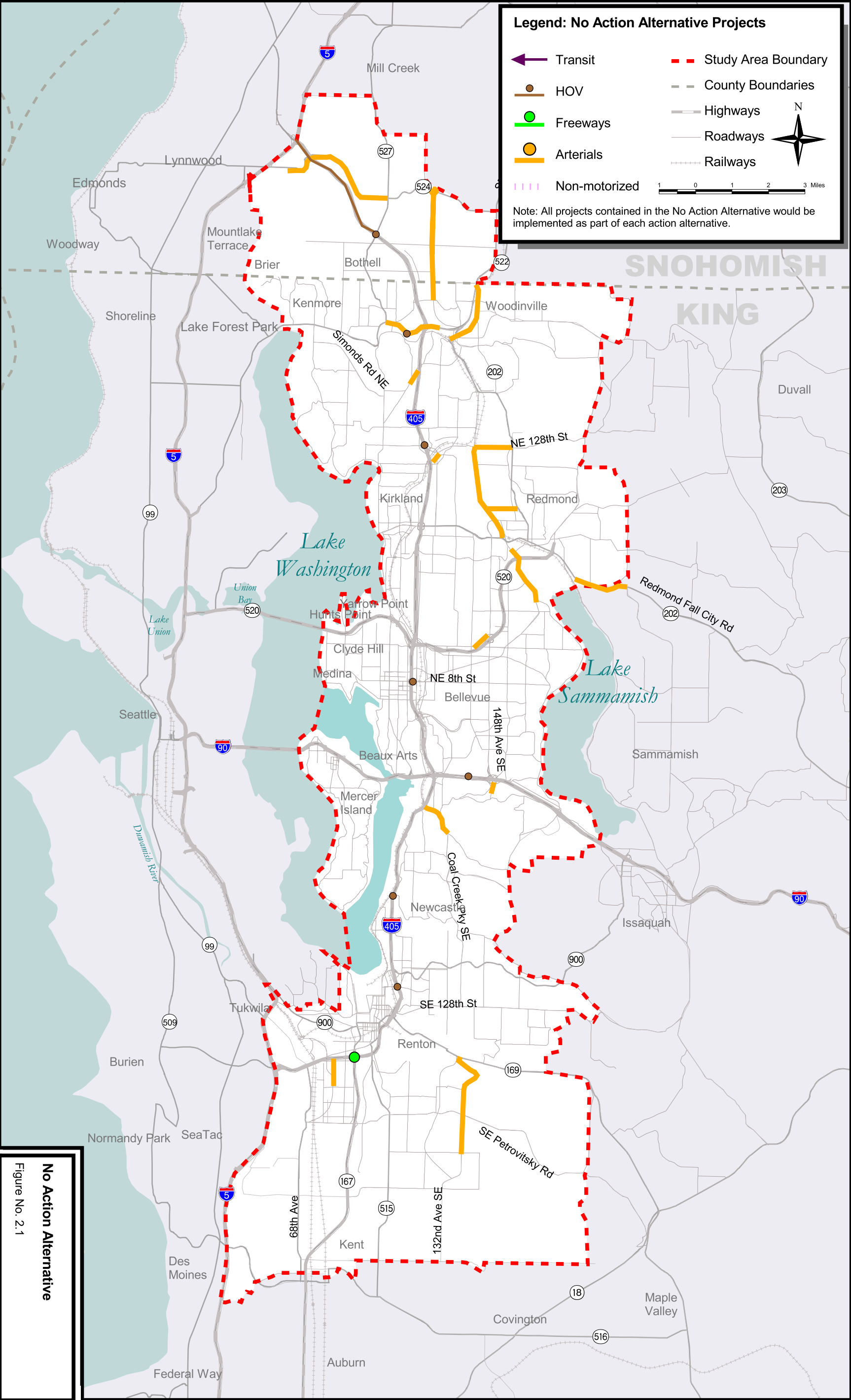
Figure 2.1 shows the locations of the improvements contained in the No Action Alternative. Appendix B (Alternatives Project Matrix) identifies the specific transportation improvements and mobility solutions contained within each system element and alternative.



## 2.2 Alternative 1: High-Capacity Transit/TDM Emphasis

This alternative attempts to minimize addition of new impervious surface from general purpose transportation improvements and to encourage transit use within the study area. To do this, Alternative 1 emphasizes reliance on a new physically separated fixed-guideway HCT system, substantial expansion of local bus transit service, non-construction mobility solutions such as regional transportation pricing, and transportation demand management (TDM) strategies. It does not include any increase in roadway capacity beyond the No Action Alternative. All improvements contained in the No Action Alternative are included in Alternative 1, as well as in the other action alternatives. Table 2.1 shows the system elements contained in each of the alternatives.

Alternative 1 includes a physically separated, fixed-guideway HCT system, potentially using some form of rail technology and potentially operating within portions of the existing Burlington Northern Santa Fe (BNSF) right-of-way. The HCT system would serve the major activity centers within the study area, and would include connections to Redmond and Issaquah and west across Lake Washington to Seattle. The connection across Lake Washington is being evaluated as part of the ongoing Trans-Lake Washington Project EIS. Bus transit service would be doubled compared to the current King County 6-year plan. (The effects of recent transit reductions on short-term transit service have not been assumed.) Arterial HOV priority for transit, additional park-and-ride capacity, and additional transit center improvements also would be provided.



**Legend: No Action Alternative Projects**

- Transit
- HOV
- Freeways
- Arterials
- Non-motorized
- Study Area Boundary
- County Boundaries
- Highways
- Roadways
- Railways

Note: All projects contained in the No Action Alternative would be implemented as part of each action alternative.

**No Action Alternative**  
Figure No. 2.1

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A package of basic improvements to I-405 would be implemented, including climbing lanes, auxiliary lanes, I-90/Coal Creek interchange improvements, and I-405/SR 167 interchange improvements, among others. No additional general purpose lanes on I-405 would be provided.

Limited arterial HOV/transit improvements would be provided to facilitate access to I-405 and the fixed-guideway HCT system, along with non-construction treatments such as providing priority for transit at signals and intersections. Regional pricing strategies similar to those currently being studied by the Puget Sound Regional Council (PSRC) would be implemented along with a package of core TDM strategies that are common to all the action alternatives.

Figure 2.2 shows the location of improvements contained in Alternative 1. Appendix A (Major Elements of Alternatives) describes the system elements that are the building blocks for the alternatives. Appendix B (Alternatives Project Matrix) identifies the specific transportation improvements and mobility solutions contained within each system element and alternative.



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### 2.3 Alternative 2: Mixed Mode with High-Capacity Transit/Transit Emphasis

This alternative attempts to improve mobility options in the study area relative to Alternative 1 by providing the same substantial commitment to transit, combined with the minimum increase in roadway capacity for HOV and general purpose traffic. To do this, Alternative 2 would implement a new physically separated, fixed-guideway HCT system, substantial expansion of local bus transit service, one added lane in each direction on I-405, and improvements to connecting arterials. All improvements contained in the No Action Alternative are included in Alternative 2, as well as in the other action alternatives. Table 2.1 shows the system elements contained in each of the alternatives.

Alternative 2 includes a physically separated, fixed-guideway HCT system, potentially using some form of rail technology. The HCT system would serve the major activity centers within the study area, and would include connections to Redmond and Issaquah and west across Lake Washington to Seattle. The connection across Lake Washington is being evaluated as part of the ongoing Trans-Lake Washington Project EIS. Bus transit service would be doubled compared to the current King County 6-year plan. Arterial HOV priority for transit, additional park-and-ride capacity, and additional transit center improvements are included, as well as completion of the HOV freeway-to-freeway ramps along I-405.

To increase general purpose capacity, I-405 would be widened by one lane in each direction. One lane also would be added in each direction on SR 167 to the study area boundary. The package of basic improvements to I-405 would be implemented, along with the core TDM strategies that are common to all action alternatives. New capacity improvements on connecting arterials and freeways would be provided along with planned arterial improvements of local jurisdictions.

Figure 2.3 shows the location of improvements contained in Alternative 2. Appendix A (Major Elements of Alternatives) describes the system elements for the alternatives.

Appendix B (Alternatives Project Matrix) identifies the specific transportation improvements and mobility solutions contained within each system element and alternative.

## 2.4 Alternative 3: Mixed Mode Emphasis

This alternative attempts to substantially improve mobility options for all travel modes and to provide a HCT system throughout the study area at a lower cost than the physically separated, fixed-guideway system proposed in Alternatives 1 and 2. To do this, Alternative 3 would implement a new bus rapid transit (BRT) system, substantial expansion of local bus transit service, two added lanes in each direction on I-405, and improvements to arterials within the study area. All improvements contained in the No Action Alternative are included in Alternative 3, as well as in the other action alternatives. Table 2.1 shows the system elements contained in each of the alternatives.

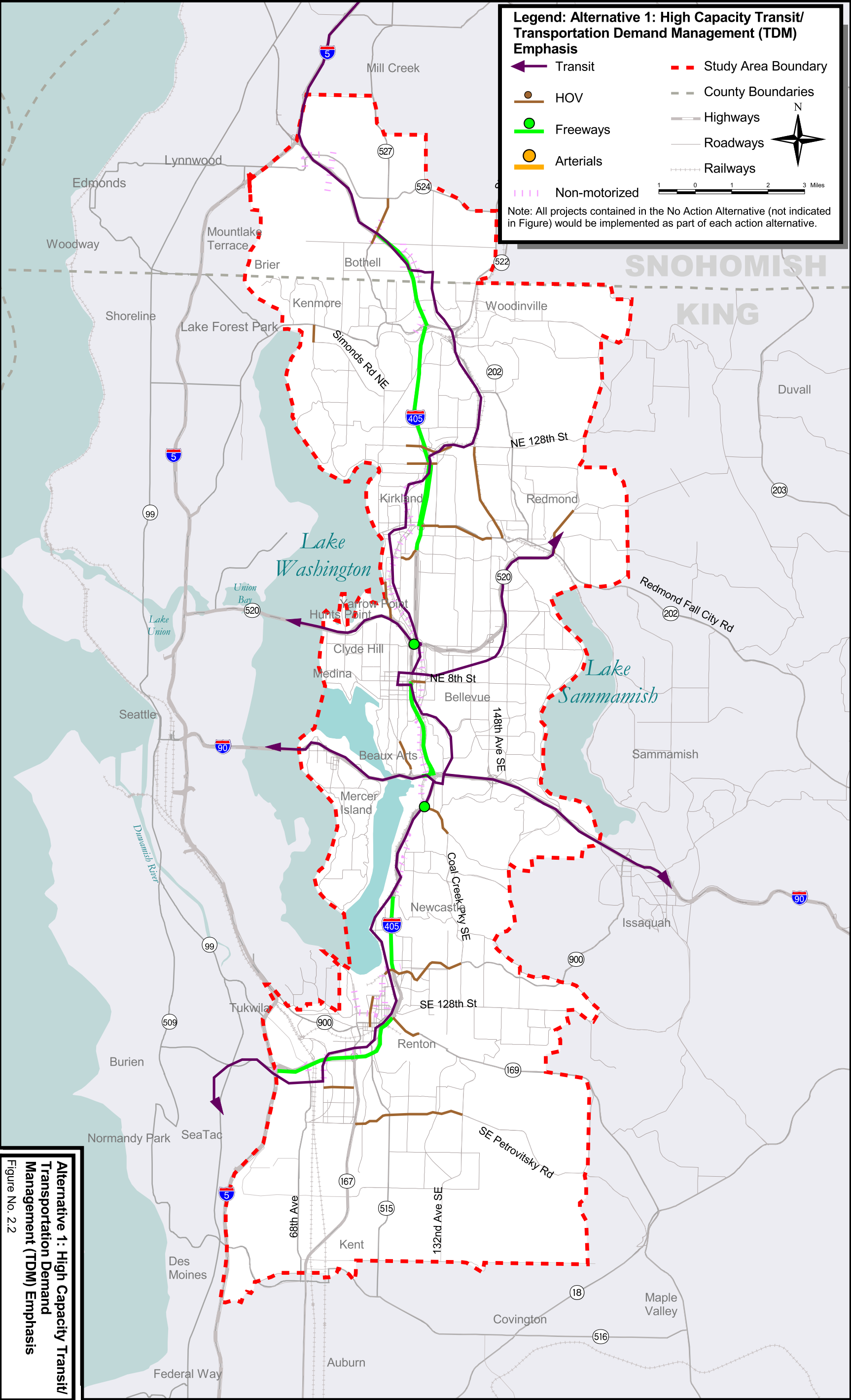
Alternative 3 includes a BRT system operating in improved-access HOV lanes on I-405, I-90, and SR 520. The BRT system would serve the major activity centers within the study area, and would include connections to Redmond and Issaquah and west across Lake Washington to Seattle. The connection across Lake Washington is being evaluated as part of the ongoing Trans-Lake Washington Project EIS. Bus transit service would be doubled compared to the current King County 6-year plan. Improved arterial HOV priority for transit, park-and-ride capacity, transit center improvements, and HOV direct access are included, as well as completion of the HOV freeway-to-freeway ramps along I-405.

This alternative would substantially increase capacity for general purpose traffic on I-405 by adding two lanes in each direction and improving major interchanges. These added general purpose lanes replace most of the auxiliary and climbing lanes contained in the package of basic improvements to I-405 that are common to the other action alternatives. One lane would be added in each direction on SR 167 to the study area boundary. The core TDM strategies would be implemented. New capacity improvements on connecting arterials and freeways would be provided. Selected arterial missing links would be completed together with planned arterial improvements of local jurisdictions.

Figure 2.4 shows the location of improvements contained in Alternative 3. Appendix A (I-405 Corridor Program - Major Elements of Alternatives) describes the system elements for the alternatives. Appendix B (Alternatives Project Matrix) identifies the specific transportation improvements and mobility solutions contained within each system element and alternative.

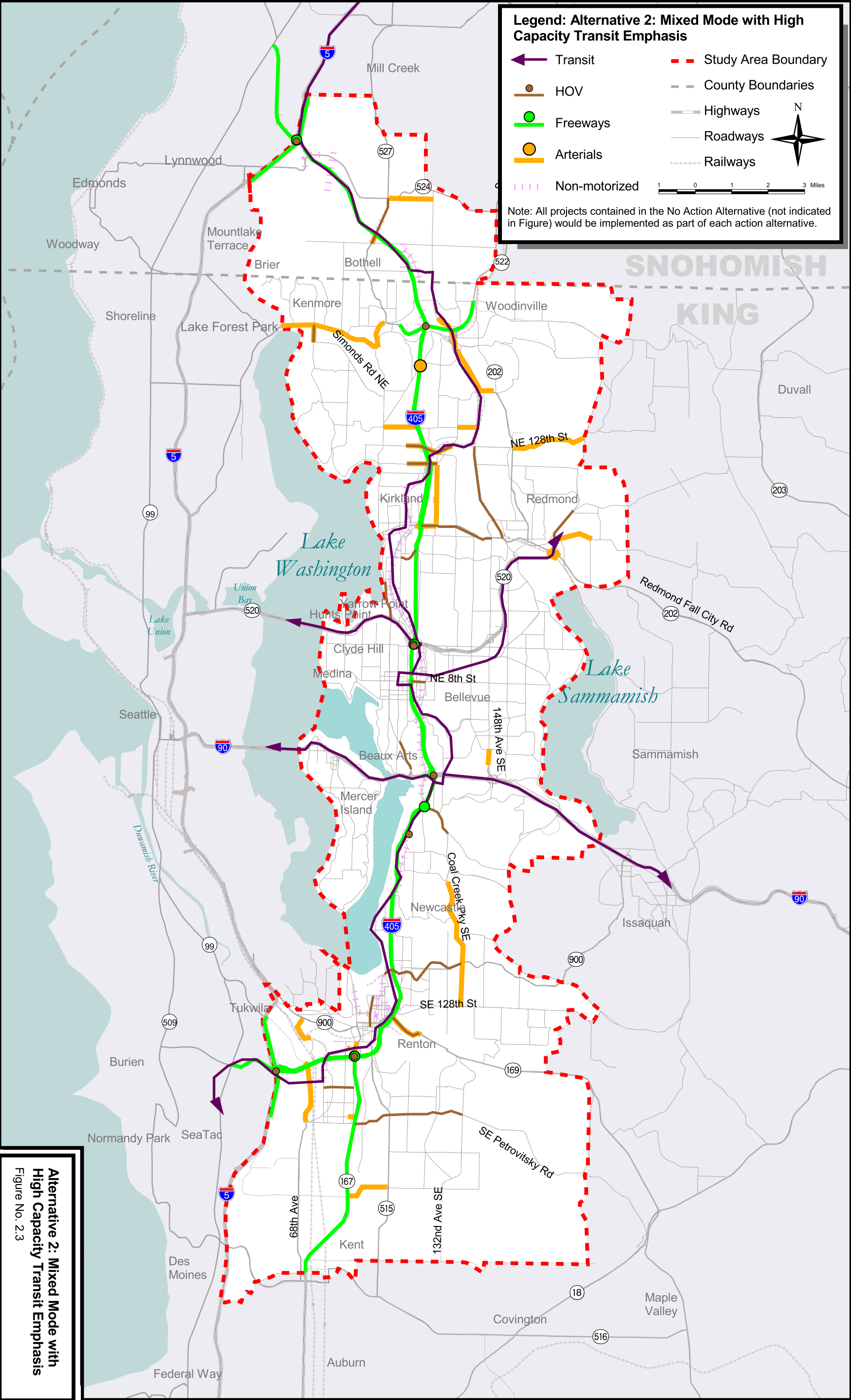
## 2.5 Alternative 4: General Capacity Emphasis

This alternative places the greatest emphasis on increasing general purpose and HOV roadway capacity, with substantially less reliance on new transit facilities or added local bus service than any of the other action alternatives. To do this, Alternative 4 would provide one additional lane in each direction on I-405, a new four-lane I-405 express roadway, and the other general purpose and HOV roadway improvements on I-405 and connecting freeways contained in Alternative 3. The expansion of local bus transit service would be about half that proposed under the other action alternatives. All improvements contained in the No Action Alternative are included in Alternative 4, as well as in the other action alternatives. Table 2.1 shows the system elements contained in each of the alternatives.



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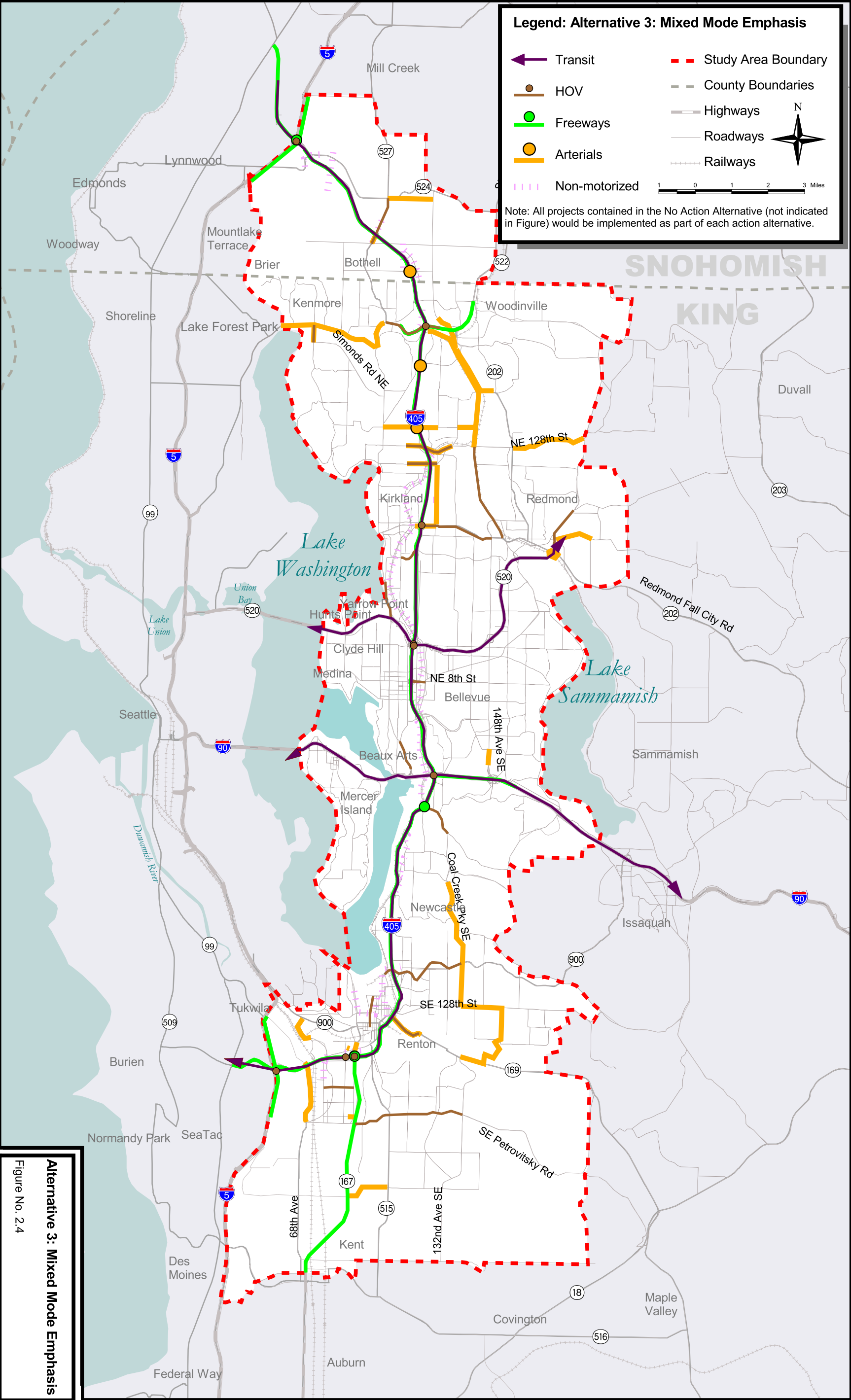




Alternative 2: Mixed Mode with High Capacity Transit Emphasis  
Figure No. 2.3



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Alternative 3: Mixed Mode Emphasis  
Figure No. 2.4

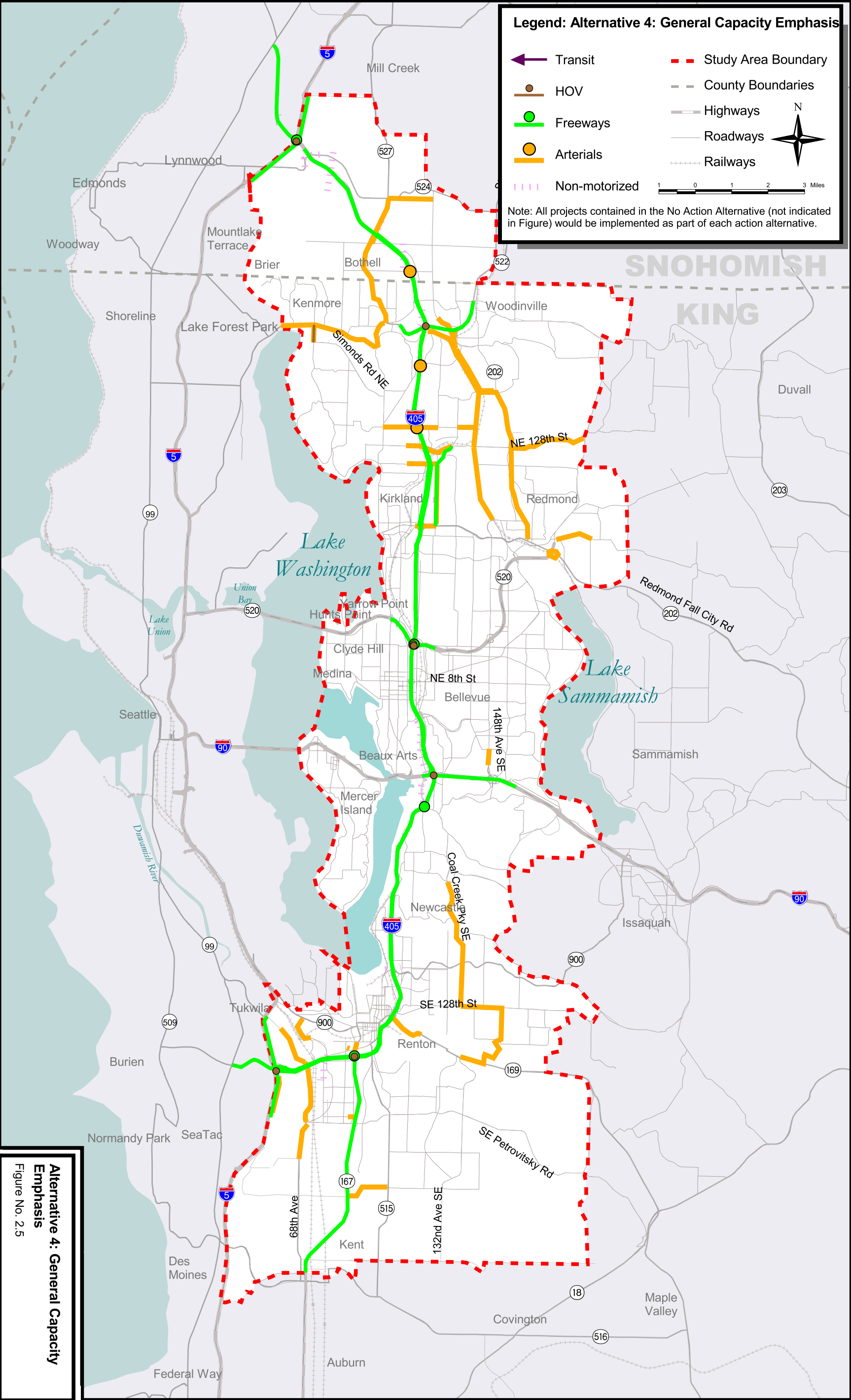
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Alternative 4 would expand freeway capacity by adding one additional general purpose lane in each direction on I-405 in most segments, improving major interchanges, and constructing a new four-lane I-405 express roadway consisting of two lanes in each direction with limited access points. Completion of the HOV freeway-to-freeway ramps along I-405 and the package of basic improvements to I-405 would be implemented.

Arterial improvements would include additional expansion of major arterial routes and connections to I-405 in conjunction with the planned arterial improvements of local jurisdictions. Transit in this alternative is assumed to be a continuation of the existing local and express bus transit system with a 50 percent increase in service compared to the current King County 6-year plan. Park-and-ride capacity would be provided along with the core TDM strategies that are common to all action alternatives.

Figure 2.5 shows the location of improvements contained in Alternative 4. Appendix A (*I-405 Corridor Program - Major Elements of Alternatives*) describes the system elements for the alternatives. Appendix B (Alternatives Project Matrix) identifies the specific transportation improvements and mobility solutions contained within each system element and alternative.

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**Alternative 4: General Capacity Emphasis**  
Figure No. 2.5

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### 3. METHODOLOGY AND COORDINATION

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#### 3.1. Evaluation Criteria

Potential direct wildlife impacts such as habitat loss and disturbance from proposed construction were assessed. The linear distance of habitats encroached upon was used as an index to quantify habitat impacts. The documented occurrence of priority species and the level of use of wildlife within the analysis area were also discussed. Indirect impacts to wildlife, such as post-construction disturbance, and proposed and potential wildlife mitigation measures were identified.

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#### 3.2 Approach to Analyses

Preliminary information reviewed to assist the field investigation included databases of the Washington State Department of Natural Resources (DNR) Natural Heritage Data System (NHDS) and WDFW Priority Habitats and Species (PHS) Program. Records of notable plant or animal species and habitats known or expected to occupy the subject property were reported by these data sources. This information was presented on geographic information system (GIS) maps, which could be superimposed over maps showing the locations of proposed transportation improvements for each alternative. The maps were used to make preliminary assessments of meaningful potential impacts to upland vegetation, habitat, wildlife, and federally listed species. Upland vegetation and habitat was further evaluated during field reconnaissance.

Land use in the analysis area was determined to be “Urban,” “Suburban,” or “Rural,” based on City Comprehensive Plans, USGS maps, and aerial photographs. Areas identified as “Urban” by this study are typically highly developed (mostly industrial and commercial use) and sparsely vegetated, offering low habitat value to wildlife. Suburban areas are moderately developed (mostly residential use) and offer moderate habitat value to wildlife in the form of backyard vegetation, parks, and open space. Rural areas are mostly undeveloped (small farms and low-density residential development) and offer considerable areas of usable habitat. All determinations were subsequently verified in the field.

Each of the projects that would result in impacts beyond the existing developed road prism was identified for each alternative. The location of each of these projects was identified on base maps and then overlaid with WDFW PHS maps to identify habitat impacts. A field reconnaissance was also conducted to characterize habitat in the analysis area to further describe impacts. Because not enough project information is available to calculate the area of habitat that would be affected by each project/alternative, potential habitat impacts were quantified based on the linear distance where each of the projects would require construction beyond the developed road prism. The linear distance of habitats encroached upon was used as an index to quantify habitat impacts. Therefore, this linear quantification of impacts assumes that if construction outside of the developed road prism occurs, then impacts to the adjacent habitat will result. This worst-case approach assumes that impacts will occur even though they may be avoided if the functioning habitat does not occur immediately adjacent to the developed road prism.





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### 3.3 Coordination with Agencies and Jurisdictions

DNR and WDFW provided information on wetlands, wildlife, vegetation, and habitat resources documented within the study area. A draft version of this report was reviewed and written comments provided by WSDOT, National Marine Fisheries Service (NMFS), WDFW, and the City of Bellevue.



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### 3.4 Plans, Policies, and Approvals

Highway construction and operation activities that affect habitats, vegetation, and wildlife resources are subject to federal, state, and local agency approvals. Compliance with federal, state, and local permits, plans, and policies is partially provided for through the environmental review process conducted under the National Environmental Policy Act (NEPA). Listed below are permits, plans, and policies relating to uplands and wildlife resources that must be considered prior to and/or during construction and operation of the proposed projects included in the alternatives.

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#### 3.4.1 Federal

The following federal laws and regulations pertain to the protection of upland vegetation, habitat, wildlife, and endangered/threatened species:

- Migratory Bird Treaty  
Under the Migratory Bird Treaty, it is unlawful to kill or possess migratory birds.
- Bald and Golden Eagle Protection Rules  
The Bald and Golden Eagle Protection Rules provide protection of bald and golden eagles and their nests.
- Section 7 of the Endangered Species Act  
The Endangered Species Act (ESA) of 1973 prohibits any action from jeopardizing the continued existence of fish, wildlife, or plants that are endangered or threatened with extinction. Authority to administer the Act lies with the United States Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS).

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#### 3.4.2 State

The following state laws and regulations pertain to the protection of upland vegetation, habitat, wildlife, and endangered/threatened species:

- Bald Eagle Protection Rules  
The purpose of the Bald Eagle Protection Rules is to protect bald eagle habitat through cooperative management. Preparation of a site management plan is required for land use actions that could affect bald eagles.
- Taking of Protected Wildlife  
It is unlawful to hunt, fish for, possess, control, or destroy the nests or eggs of wildlife classified as “protected” or “endangered” by the state.

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### 3.4.3 Local

The study area corridor encompasses multiple jurisdictions with varied permits, plans, and regulations dealing with habitats, vegetation, and wildlife resources. All applicable local regulations will be followed in accordance with standard construction procedures. Jurisdictions crossed by the project include King County, Snohomish County, City of Tukwila, City of Renton, City of Newcastle, City of Bellevue, City of Kirkland, City of Redmond, and City of Woodinville.

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## 4. AFFECTED ENVIRONMENT

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### 4.1. Upland Vegetation

Historically, land in the vicinity of the I-405 corridor was dominated by mature forests of western hemlock (*Tsuga heterophylla*) and Douglas fir (*Pseudotsuga menziesii*) in drier areas and mixed coniferous-deciduous forests, particularly red alder (*Alnus rubra*) and big-leaf maple (*Acer macrophyllum*), in wetter areas (Franklin and Dyrness, 1973). Much of the study area was logged around the turn of the century, and the land was cleared in the early 1900s for agricultural purposes. Since then, the remaining forests have been further fragmented as development has increased.

At the present time, the largest portion of the project study area falls within highly developed commercial, industrial, and residential areas categorized as urban areas and moderately developed, mostly residential areas categorized as suburban areas for the purposes of this study. Landscaped vegetation and invasive species have replaced most of the native vegetation in these areas. Much of the area encountered by the project in the urban and suburban areas falls within road ROW, which is commonly vegetated with landscaped trees, sword fern (*Polystichum munitum*), Himalayan blackberry (*Rubus procerus*), or mowed grass.

In the low-lying area north of Woodinville, the project encounters land designated as farmland by Snohomish County. Vegetation in this area is predominantly pasture grasses and cultivated crops. The remaining largely undeveloped rural areas falling within the project study boundary contain a mix of landscaped vegetation, pastured areas, herbaceous and shrub vegetation along BPA powerlines, and pockets of forest. These forested pockets are commonly found along drainage ravines, undevelopable slopes, and areas preserved as open space. They are typically dominated by western red cedar (*Thuja plicata*), western hemlock, Douglas fir, red alder, and big leaf maple with an understory with sword fern and vine maple (*Acer circinatum*) scattered throughout.

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### 4.2 Priority Habitats

Priority habitats are designated under the WDFW PHS program (WDFW, 2000) and are identified as areas with unique or considerable value to many species. Four of these priority habitats were identified as occurring within the vicinity of the project: freshwater wetlands, riparian areas, bald eagle territory, and urban natural open space (Figure 4-1).

The freshwater wetlands are described in detail in the *I-405 Corridor Program Draft Wetlands Expertise Report* (DEA, 2001). Vegetated uplands adjacent to these wetland areas are considered to be some of the richest zones for mammals and birds. In Washington State, 85 percent of the terrestrial vertebrate species use wetlands and/or the vegetated upland adjacent to wetlands for food, breeding, and shelter (Castelle, et al., 1992).

Riparian habitat in the study area occurs along lake shorelines and along the banks of streams and rivers and is of similar importance to wildlife. These riparian areas compose a network of open space corridors which allow wildlife to move relatively freely among

nesting and foraging areas. Riparian corridors in the vicinity of the projects are associated with the Cedar River, May Creek, Panther Creek, the Green River, Coal Creek, Springbrook Creek, Molasses Creek, Mercer Slough, Richards Creek, Juanita Creek, Swamp Creek, Horse Creek, North Creek, and the Sammamish River. Although each of these riparian areas fall within the study area, only riparian areas mapped by WDFW along Forbes Creek, Kelsey Creek, and May Creek are encountered by the proposed projects. However, impacts to unmapped riparian habitat could result along other streams in the analysis area.

Urban natural open space is land that has been preserved because it provides habitat for priority species or is an isolated remnant of natural habitat larger than 10 acres and surrounded by urban development. Identified urban natural open space falling within the analysis area includes numerous Bellevue parks, Coal Creek Park, Coal Creek riparian area, and Renton riparian forest.

The WDFW (2000) identifies five bald eagle territories within the analysis area: the St. Edwards Park, Marymoor Park, Hunt Point, SE Mercer Island and Chism Beach territories. Bald eagle territories are typically proximate to water with an adequate food source and large trees that provide an unobstructed view of the water body.



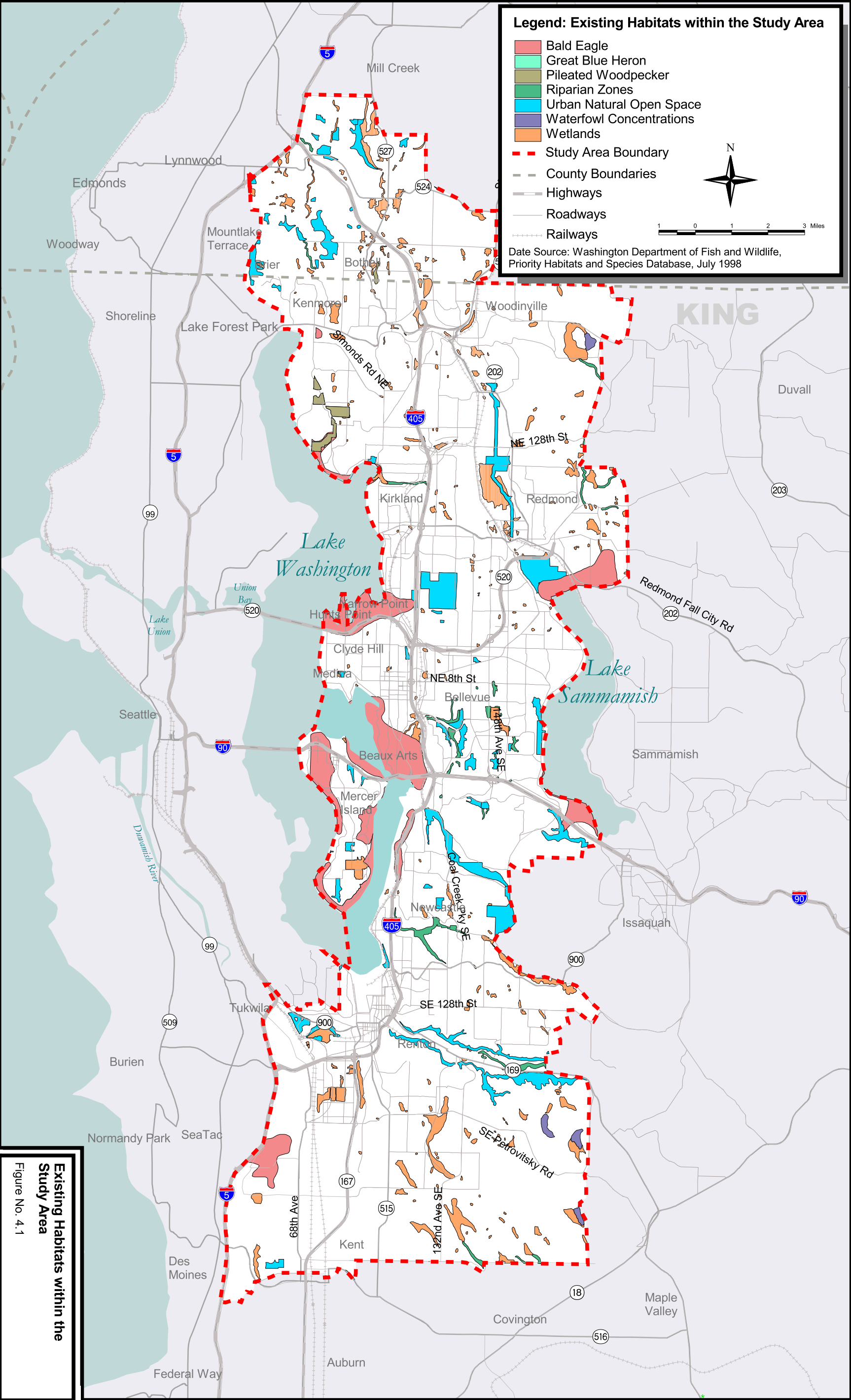
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## 4.3 Wildlife

Much of the urbanized portion of the project is inhabited by species typical of developed areas. The prevalence of development and landscape maintenance activities in these areas has resulted in the predominance of species adapted to degraded and disturbed habitats. These species often include: American robin (*Turdus migratorius*), violet-green swallow (*Tachycineta thalassina*), house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), American crow (*Corvus brachyrhynchos*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), and several small mammal species. Fragmented areas of riparian vegetation provide limited corridor habitat through developed areas for wildlife. See Appendix I for a table of wildlife species commonly occurring within the project study area.

The WDFW (2000) identifies one area on Mercer Island in the vicinity of the project where osprey (*Pandion haliaetus*) (a State Monitor species) occur and one area in Redmond where western pond turtles (*Clemmys marmorata*) (State endangered, Federal Species of Concern) have been documented. The data also identify five areas in Redmond, Kirkland and Mercer Island where great blue heron (*Ardea herodias*) (WDFW Priority species) rookeries occur within the analysis area.

Most of the area encountered by the projects falls within road ROW described in the vegetation section above. These areas typically have low habitat value to wildlife and are generally highly disturbed. Wildlife could occasionally occupy these areas; however, such occurrence is likely to be short-term during movement between more suitable habitats. Crows commonly scavenge roadkill and garbage in these ROW areas. Species that might potentially use ROW areas vegetated with shrubs or small trees include black-capped chickadee (*Parus atricapillus*), chestnut-backed chickadee (*P. rufescens*), common bushtit (*Psaltirparus minimus*), ruby-crowned kinglet (*Regulus calendula*), Bewick's wren (*Thryomanes bewickii*), spotted towhee (*Pipilo erythrophthalmus*), dark-eyed junco (*Junco hyemalis*), song sparrow (*Melospiza melodia*), and rats (*Rattus* spp.).



**Legend: Existing Habitats within the Study Area**

- Bald Eagle
- Great Blue Heron
- Pileated Woodpecker
- Riparian Zones
- Urban Natural Open Space
- Waterfowl Concentrations
- Wetlands
- Study Area Boundary
- County Boundaries
- Highways
- Roadways
- Railways

Date Source: Washington Department of Fish and Wildlife, Priority Habitats and Species Database, July 1998

**Existing Habitats within the Study Area**  
Figure No. 4.1

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Some species use mowed ROW for foraging or travel when shrub or tree cover is nearby. These include red-tailed hawk, American kestrel (*Falco sparverius*), northern flicker (*Colaptes auratus*), killdeer (*Charadrius vociferus*), brewer's blackbird (*Euphagus cyanocephalus*), rufous hummingbird (*Selasphorus rufus*), meadow mice (*Microtus* spp.), moles (*Scapanus* spp.), and coyote (*Canis latrans*). Many mowed road ROWs are regularly used for hunting by red-tailed hawks. They often perch on trees, fence posts, and utility poles located along the ROWs and prey on meadow mice and other small rodents that live along the ROW. Given the extensive level of development that has eliminated much of the former agricultural areas in the analysis area, these grass-dominated ROWs likely provide important hunting habitat for hawks.

Pockets of forested habitat along road ROWs may be used by forest species not overly sensitive to noise or habitat fragmentation. These could potentially include downy woodpecker (*Picoides pubescens*), hairy woodpecker (*P. villosus*), Steller's jay (*Cyanocitta stelleri*), red-breasted nuthatch (*Sitta canadensis*), winter wren (*Troglodytes troglodytes*), varied thrush (*Ixoreus naevius*), western tanager (*Piranga ludoviciana*), raccoon, opossum, and eastern gray squirrel (*Sciurus carolinensis*). However, most of these species would occur only in the larger patches of native vegetation or patches connected to other undeveloped areas by wooded corridors.



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#### 4.4 Threatened/Endangered Species

The bald eagle is the only terrestrial species listed as threatened under the ESA that is documented within 0.5 mile of the projects (WDFW, 2000). The WDFW (2000) identifies five bald eagle territories in the analysis area (See Section 4.2).

Nesting activities occur from January 1 through August 15 (USFWS 1986). Bald eagle nesting territory parameters in the Pacific Northwest include proximity to water with an adequate food source, large trees with sturdy branching at sufficient height for nesting, and stand heterogeneity both vertically and horizontally (Grubb, 1976). Nest tree structure is more important than tree species, and nest trees are typically among the largest in the stand providing an unobstructed view of an associated water body (USFWS, 1986).

In addition to nesting, bald eagles also winter in the vicinity of large bodies of water in tall stands of trees. Bald eagle wintering activities occur from 15 November through 15 March (USFWS, 1986). In the analysis area, bald eagles winter near such water bodies as Lake Washington, Lake Sammamish, and the Cedar River.

The western pond turtle (a state endangered species) is documented near Lake Sammamish. However, this record is not recent, and past surveys by the WDFW did not identify western pond turtles in the vicinity. Viable populations are not expected to occur in the analysis area.

Note: Threatened and endangered fish species are addressed in the *I-405 Corridor Program Draft Fish and Aquatic Habitat Expertise Report* (DEA, 2001).



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## 5. IMPACT ANALYSIS

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### 5.1 No Action Alternative

Under the No Action Alternative, a variety of projects would result in impacts to priority habitats (see Appendix D; Figure 5-1). No projects under the No Action Alternative encounter riparian habitats identified by WDFW (2000). The No Action Alternative affects 12,200 linear feet of urban natural open space resulting in habitat loss and disturbance to the periphery of habitats. The alternative could affect up to 3,600 linear feet of habitat located within bald eagle territories. Increased noise disturbance could occur at one bald eagle nest which is located within 0.5 mile from a project. Wetland habitats are also impacted and are discussed extensively in the *I-405 Corridor Program Draft Wetlands Expertise Report* (DEA, 2001).

The No Action Alternative is not expected to have substantial adverse impacts on upland vegetation, habitat, wildlife, and endangered/threatened species. Most of the project area is at or near buildout and the opportunity for future development is limited. No Action Alternative projects are extensions of already developed corridors and roadways, affecting mostly degraded habitats.

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#### 5.1.1 Construction Impacts

Construction impacts to upland habitats from the No Action Alternative would result primarily from road widening. Widening could impinge anywhere from a width of 5 to 20 feet in a linear fashion over a variety of priority and unclassified habitats. The majority of impacts would occur in presently degraded habitats such as mowed ROW. Along the I-405 corridor, most of the immediate area beyond the ROW is landscaped or disturbed from previous projects and is now dominated by a variety of non-native plants. Although impacts to such habitat generally would have minimal effects on wildlife, these areas provide important habitat for some species. The loss of mowed ROW will reduce the available hunting habitat for many raptors, especially red-tailed hawks.

The temporal impacts associated with construction include visual and audible disturbance, and possible contaminant spills. Noise levels associated with construction machinery could affect wildlife depending on the proximity to the project and the proximity of other noise sources common in the vicinity. However, given the present levels of disturbance in the analysis area, the effects of construction disturbance to wildlife are likely to be minor for most species. Raptors are likely to be most affected by disturbance from construction. Construction activities could result in a temporary loss of use of raptor hunting habitat. Many fuels and chemicals are linked with construction projects and accidental spills are a possibility. Pollutant spills could impact vegetation and individual wildlife.

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#### 5.1.2 Endangered Species

Project R-25 comes within 0.23 mile of a bald eagle nest located in Marymoor Park in Redmond. The project is currently located in a developed area with a railway between the project and the nest, and therefore disturbance from noise and human activity is already

tolerated by the birds. Additional noise and activity from this project would occur farther from the nest than that which already exists. However, the activity that would result from project construction might differ from that to which the eagles are accustomed. Bald eagles are particular in their habituation, and disturbance of different types can impact them differently. Therefore, construction activities could impact the eagles, although they may eventually habituate to such disturbance.

Disturbance from construction and eventually more automobiles could possibly have impacts on other eagle nests, perches, or roosts if they are located within 0.5 mile (with line of sight) and 0.25 mile (without line of sight) from the project areas. With the exception of the nest addressed above, most nests, roosts, and perches are further than 0.5/0.25 from proposed projects. Considering the success the eagles in the analysis area have had in this already urbanized environment, they might habituate to human disturbance. However, the overall impacts to habitat from the projects could degrade the quality of the territory.

The most substantial habitat impacts would result from encroachment on wetlands and aquatic areas that support bald eagle prey species. Impacts to these habitats are addressed in the I-405 Corridor Program Draft Expertise Reports on Fish and Aquatic Habitat, and Wetlands (DEA, 2001).

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### 5.1.3 Operational Impacts

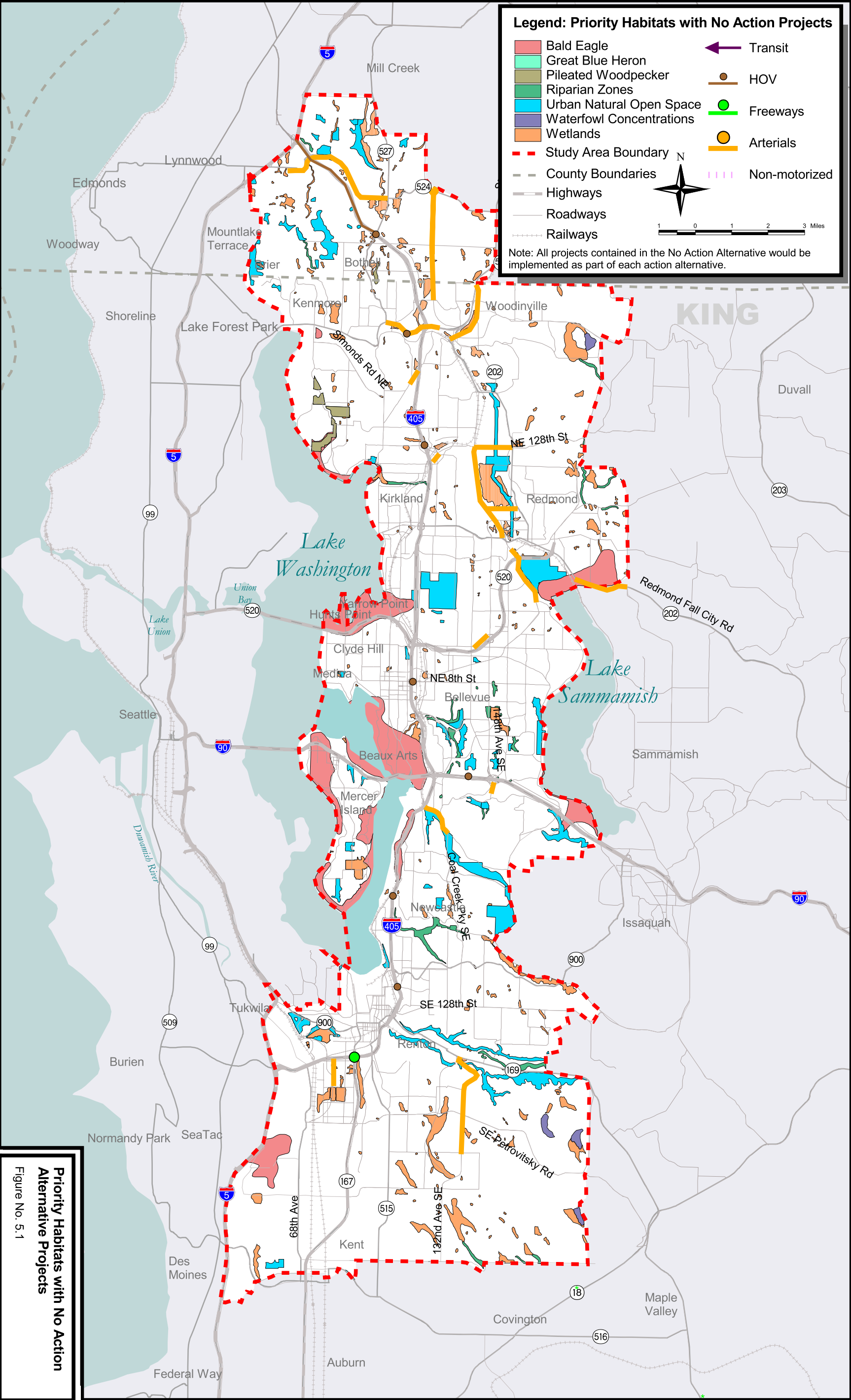
Operational impacts could occur, yet roadways already exist and expansion will not result in a change in land use, only a slight increase in the level of disturbance. Because most projects are associated with freeway improvements, disturbance increases will be negligible. Disturbance associated with increased traffic along arterials and other road expansions would have a slightly greater impact on wildlife. Increases in traffic will likely result in more wildlife mortality from automobiles. The noise associated with traffic increases could reduce the suitability of habitat located within the ROW for the more disturbance-sensitive species such as raptors. Increased traffic levels increase the chance of pollution through road runoff and accidental fuel/oil spills.

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## 5.2 Alternative 1: High-Capacity Transit/ Transportation Demand Management

Alternative 1 includes a variety of projects that could have linear impacts on various priority habitats (see Appendix E; Figure 5-2). The alternative could impact 12,340 linear feet of riparian habitat identified by WDFW (2000) and is discussed in greater detail in the I-405 Corridor Program Draft Fish and Aquatic Habitat Expertise Report (DEA, 2001). Alternative 1 could affect 30,900 linear feet of urban natural open space resulting in habitat loss from the installation of the HCT System and disturbance to the periphery of habitats. The alternative could impact 36,500 linear feet of bald eagle territory, 10 times that of the No Action Alternative. Construction would occur within 0.3 mile of one bald eagle nest. Wetland habitats also could be impacted and are discussed extensively in the I-405 Corridor Program Draft Wetlands Expertise Report (DEA, 2001).

Some projects in this alternative, such as the HCT system, will affect some undeveloped areas, but these areas are all within already fragmented habitats within developed areas of the



**Legend: Priority Habitats with No Action Projects**

- |                                      |                           |
|--------------------------------------|---------------------------|
| <div></div> Bald Eagle               | <div></div> Transit       |
| <div></div> Great Blue Heron         | <div></div> HOV           |
| <div></div> Pileated Woodpecker      | <div></div> Freeways      |
| <div></div> Riparian Zones           | <div></div> Arterials     |
| <div></div> Urban Natural Open Space | <div></div> Non-motorized |
| <div></div> Waterfowl Concentrations |                           |
| <div></div> Wetlands                 |                           |
| <div></div> Study Area Boundary      |                           |
| <div></div> County Boundaries        |                           |
| <div></div> Highways                 |                           |
| <div></div> Roadways                 |                           |
| <div></div> Railways                 |                           |

Note: All projects contained in the No Action Alternative would be implemented as part of each action alternative.

**Priority Habitats with No Action Alternative Projects**  
Figure No. 5.1

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corridor. Further fragmentation may restrict the use of these areas by wildlife (see Section 4.3) by reducing suitable available habitat or associated cover and corridors. The precise impacts to specific areas cannot be fully assessed until project-level information is available.

---

## 5.2.1 Construction Impacts

Construction impacts under Alternative 1 would primarily include those described under the No Action Alternative. In addition, Alternative 1 includes HCT projects that could impact areas previously unaffected by roadway projects. This contributes to an increased loss of urban natural open space 2.5 times that of the No Action Alternative. The additional projects included under this alternative could result in a similar increase in construction disturbance. New projects, such as the HCT system, could cause additional fragmentation of habitats and possibly obstruct existing wildlife corridors. In particular, 3 projects may impact riparian zones in the May Creek basin, as they require new construction on the edge of a PHS area.

### 5.2.1.1 Endangered Species

In addition to the encroachment to the Marymoor Park bald eagle nest discussed under the No Action Alternative, Alternative 1 would also encroach on a second bald eagle nest. Project R.HOV-56 runs along the eastern edge of Yarrow Bay, within 0.3 mile of a bald eagle nest. Relatively low density development occurs between the project and the nest, but some sections of the current roadway run along the edge of the wetlands and would directly impact the edge of the habitat. The proximity of the project to the nest site leaves open the potential for noise disturbance.

There is greater potential for disturbance to other bald eagle territory, including perches, roosts, and foraging habitat, under this alternative than the No Action Alternative, as this alternative impacts 10 times the linear footage of the No Action Alternative.

The USFWS bald eagle recovery plan asserts that construction activities within 0.25 miles of bald eagle nests and roosts should be regulated to avoid disturbance impacts. That distance increases to 0.5 miles when the nest or roost is in view of the construction activities. However, the bald eagle nests identified in this study are unique in that they occur in urban areas, and development activities commonly occur between the nests and the project areas. Not only are the individual birds habituated to a certain degree to disturbance, but disturbance associated with the projects in this study will probably not notably increase the level of disturbance that is already present. It may, however, decrease the overall quality of the habitat within the territory and could impact eagles if they are not accustomed to construction disturbance, as described in Section 5.1.2, Endangered Species. The actual extent of impacts to bald eagles will not be identified until project-level information is generated. If construction extends well beyond the existing road prism, perch trees and prey habitat could be affected. This is most likely to result from projects that result in impacts to aquatic and wetland areas. Impacts to these habitats are addressed in the *I-405 Corridor Program Draft Expertise Reports on Fish and Aquatic Habitat, and Wetlands* (DEA, 2001).

---

### 5.3.2 Operational Impacts

Operational impacts are similar to the No Action Alternative but with the addition of the HCT system and projects that increase capacity along various highways. The HCT system and capacity projects will bring additional noise disturbance to surrounding habitats and increased fragmentation of habitats that could further limit wildlife movement between habitats. Because Alternative 2 would result in more development in rural areas than the other alternatives, with the exception of Alternative 3, it would likely have the greatest disturbance-related impacts to wildlife. Because wildlife in the less developed portions of the analysis area are likely to be less tolerant of human disturbance than those that occur in the more developed areas, disturbance impacts under Alternative 2 are likely to be greater than would occur under Alternative 1 and 4.

---

## 5.4 Alternative 3: Mixed Mode Emphasis

Alternative 3 projects range from basic improvements to I-405 and the addition of two general purpose lanes on I-405 to high-capacity bus transit and a number of arterial projects. Project scale and impacts to upland habitat are similar to that of Alternative 2 (see Appendix G; Figure 5-4). Alternative 3 could affect 40,100 linear feet of urban natural open space in addition to that impacted in the No Action Alternative. The alternative could impact 37,660 linear feet of bald eagle territory. One bald eagle nest could experience increased noise disturbance. Alternative 3 encroaches upon 13,560 linear feet of riparian habitat in comparison to 0 linear feet for the No Action Alternative. Riparian habitat impacts are discussed in greater detail in the *I-405 Corridor Program Draft Fish and Aquatic Habitat Expertise Report* (DEA, 2001). Wetland habitats also could be impacted and are discussed in the *I-405 Corridor Program Draft Wetlands Expertise Report* (DEA, 2001).

The projects proposed under this alternative would affect more urban natural open space than Alternative 2, and less riparian and wetland habitat. Impacts to these areas would be proportionate to the area affected, and might thus have a greater effect on red-tailed hawks, American kestrels, and other species that commonly occur in urban natural open space, and a lesser effect on riparian and wetland habitat than would occur under Alternative 2.

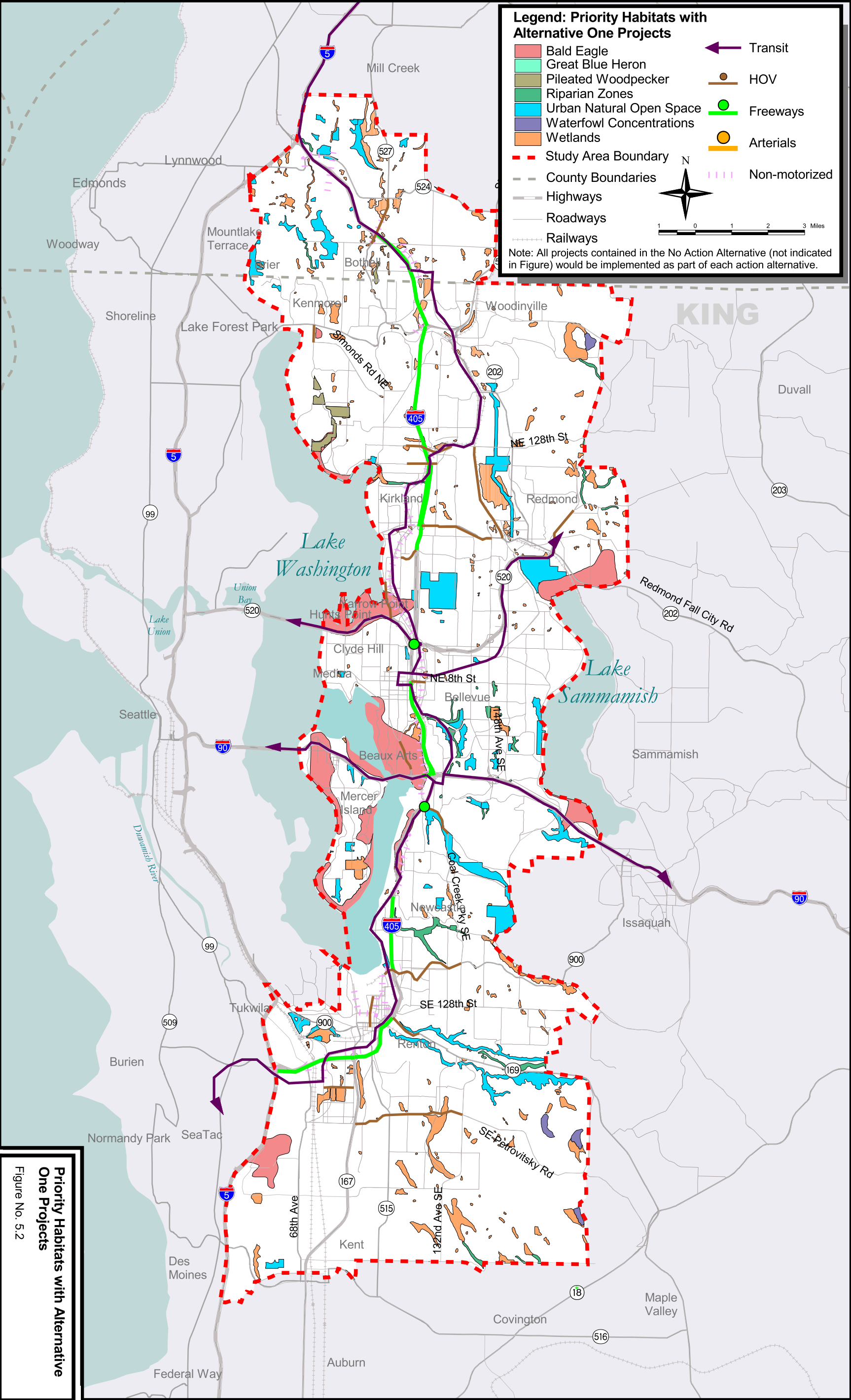
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### 5.4.1 Construction Impacts

Construction impacts under Alternative 3 would be the same as described under the No Action Alternative but with the following additions. New projects under Alternative 3 would result in additional impacts to urban natural open space, roughly 4 times that of the No Action Alternative. All PHS areas would also experience greater linear impacts. The additional projects involved would likely result in a proportionate increase in construction disturbance over the No Action Alternative. New projects could cause additional fragmentation of habitats and possibly further limit wildlife access to habitat. Alternative 3 would result in the same amount of development in rural areas as Alternative 2, and it would have the same disturbance-related impacts to wildlife as Alternative 2.

#### 5.4.1.1 Endangered Species

Alternative 3 would result in the same impacts to bald eagle nests as described in Alternative 1, and would affect about 1,200 more linear feet of bald eagle habitat.

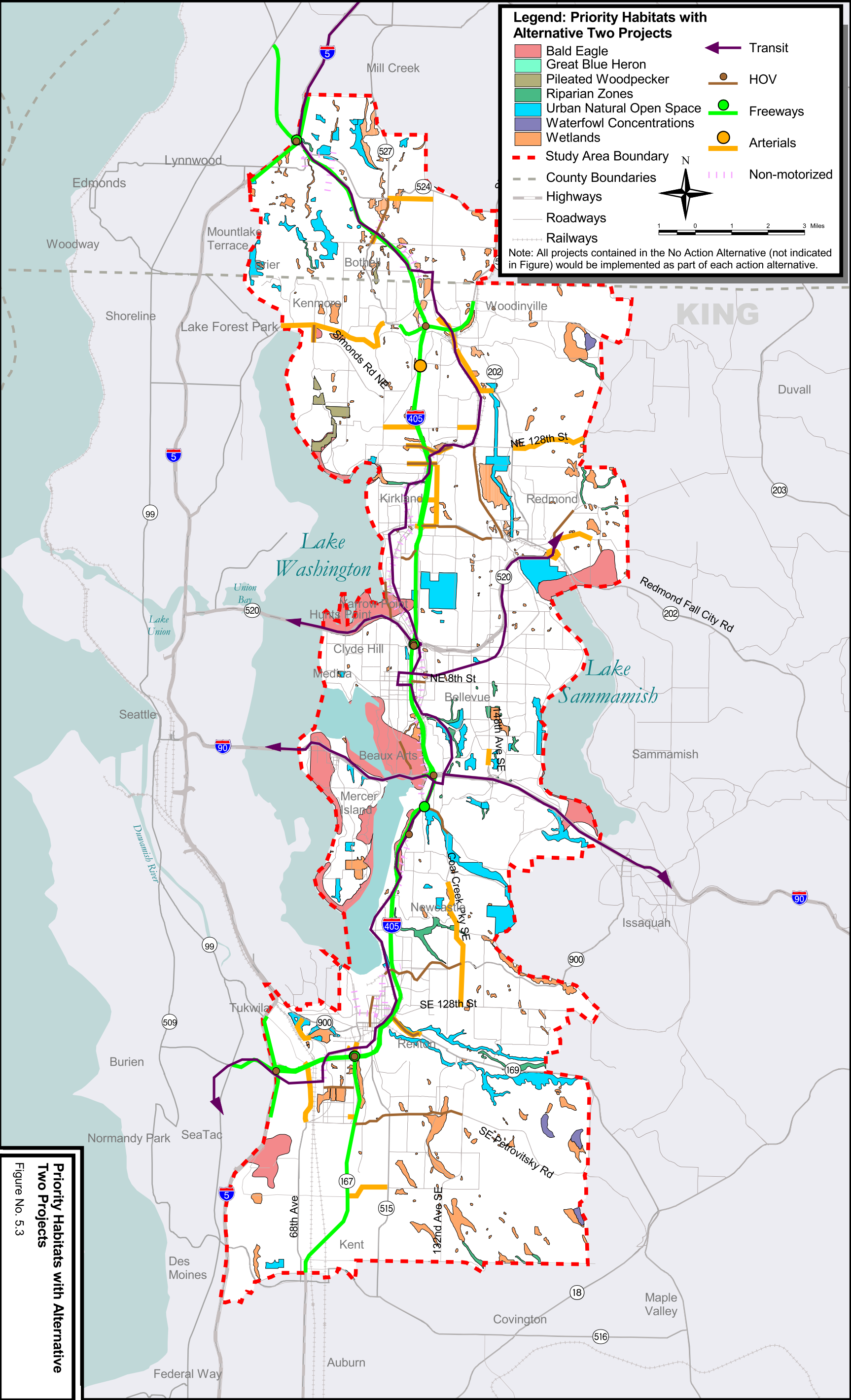


Priority Habitats with Alternative One Projects

Figure No. 5.2

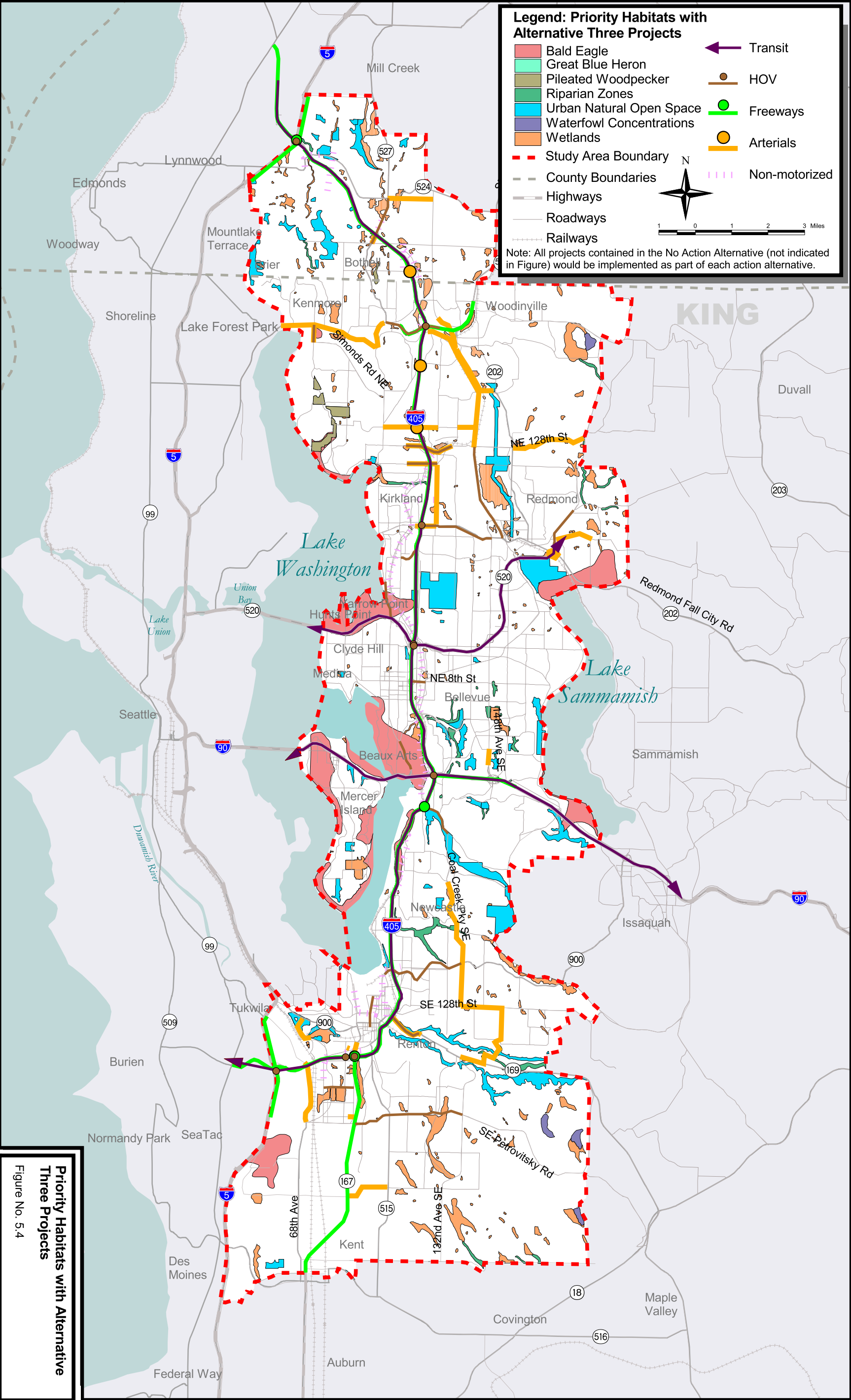


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Priority Habitats with Alternative Two Projects  
Figure No. 5.3

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**Legend: Priority Habitats with Alternative Three Projects**

Bald Eagle	Transit
Great Blue Heron	HOV
Pileated Woodpecker	Freeways
Riparian Zones	Arterials
Urban Natural Open Space	Non-motorized
Waterfowl Concentrations	
Wetlands	
Study Area Boundary	
County Boundaries	
Highways	
Roadways	
Railways	

Note: All projects contained in the No Action Alternative (not indicated in Figure) would be implemented as part of each action alternative.

**Priority Habitats with Alternative Three Projects**  
Figure No. 5.4

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#### 5.4.2 Operational Impacts

Operational impacts under Alternative 3 are similar to those described for the No Action Alternative but with some additions. The HCT bus system, addition of lanes on existing highways, and the arterial projects will increase disturbance in surrounding habitats. Increased capacity would result in potentially more wildlife mortality from increased traffic volumes.

### ■ 5.5 Alternative 4: General Capacity Emphasis

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Alternative 4 includes 134 projects ranging from basic improvements to I-405 and the addition of express lanes, major interchanges on I-405, and extensive arterial projects (see Appendix H; Figure 5-5). Alternative 4 encounters 21,700 linear feet of urban natural open space which could be impacted through habitat loss and disturbance. In addition to the bald eagle impacts identified under the No Action Alternative, Alternative 4 could affect 46,860 linear feet of bald eagle territory. Alternative 4 encroaches on 11,120 linear feet of riparian habitat in comparison to none for the No Action Alternative. Riparian impacts are discussed in greater detail in the *I-405 Corridor Program Draft Fish and Aquatic Habitat Expertise Report* (DEA, 2001). Wetland habitats also could be impacted and are discussed in the *I-405 Corridor Program Draft Wetlands Expertise Report* (DEA, 2001).

Alternative 4 would result in a loss of habitat similar to that expected under Alternative 1. As is the case with the other Action Alternatives, much of the loss would occur in marginal, highly fragmented habitat. The majority of the projects under Alternative 4 involve road expansions and additions, and may therefore affect more habitat located along ROWs. Further fragmentation of habitat might also limit the availability of suitable habitat to some wildlife species.

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#### 5.5.1 Construction Impacts

Alternative 4 would result in additional construction impacts to those described under the No Action Alternative. The majority of projects under Alternative 4 are expansions of I-405 and arterials throughout the study area which will result in increased noise disturbance and loss of habitat. Alternative 4 projects encounter 2 times the amount of urban natural open space as the No Action Alternative. The additional projects involved under Alternative 4 would result in a proportionate increase in construction disturbance over the No Action Alternative. New projects, such as road extensions, could cause additional fragmentation of habitats and possibly further restrict wildlife movement along corridors. Several road expansions, including 4 that are not proposed under any other alternative, cross or border riparian habitat along May Creek and would likely impact that area.

##### 5.5.1.1 Endangered Species

Alternative 4 projects encounter 15 times the amount of bald eagle territory as the No Action Alternative. However, none of the projects, with the exception of those included under the No Action Alternative, would occur within 0.5 mile of bald eagle nests. Therefore, impacts to habitat within eagle nest territories would be greater than under the

No Action Alternative and Alternatives 1 and 3, but disturbance at nest sites would be the same as under the No Action Alternative.

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### 5.5.2 Operational Impacts

Operational impacts are the same as in the No Action Alternative with the addition of the new roads that would be built along the periphery of the corridor and will result in increased wildlife mortality and additional noise disturbance from increased automobiles. Disturbance to wildlife due to development in rural areas would be similar to that under Alternative 1.

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## ■ 5.6 Secondary Impacts

Secondary impacts are reasonably foreseeable effects of an action that occur later in time or are further removed in distance from the direct effects of the proposal. Generally, these effects are induced by the initial programmatic action. Programmatic secondary impacts are expected to be limited and unlikely for the I-405 Corridor Program for several reasons:

- All of the I-405 Corridor Program action alternatives are generally compatible with existing regional and local land use plans that have already addressed growth.
- A similar level of projected growth is expected to occur in the region, with or without the action alternatives.
- Transportation projects, similar to I-405, are frequently built in response to population and/or employment growth.
- The I-405 Corridor Program study area is experiencing a high rate of population growth and land development that is increasing travel demand and congestion.

Secondary effects may be more detectable during project-level environmental analysis. Therefore, the potential for secondary effects will be analyzed in the future project-level environmental analysis, documentation, and review.

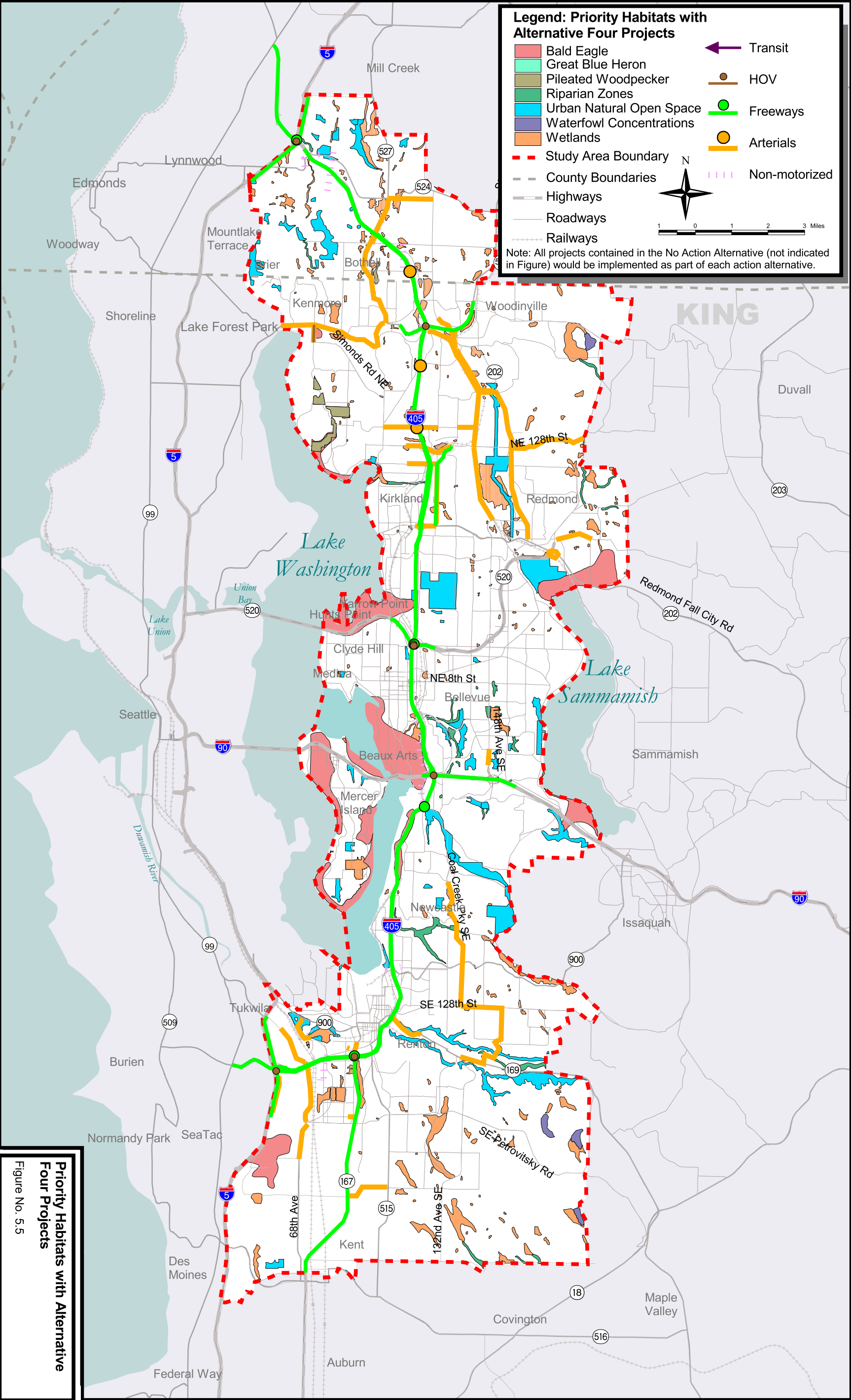
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## ■ 5.7 Mitigation Measures

Timing restrictions on construction could be implemented to protect bald eagle nesting habitats. Providing wildlife access corridors under roadways is a measure that can reduce the affects of habitat fragmentation by maintaining connections between habitats. Revegetation of roadsides and construction zones with native plants can offset loss of habitat from construction.

Other construction mitigation measures could also be employed. Mitigation needs and measures would be evaluated at the project level.





**Legend: Priority Habitats with Alternative Four Projects**

Bald Eagle	Transit
Great Blue Heron	HOV
Pileated Woodpecker	Freeways
Riparian Zones	Arterials
Urban Natural Open Space	Non-motorized
Waterfowl Concentrations	
Wetlands	
Study Area Boundary	
County Boundaries	
Highways	
Roadways	
Railways	

Note: All projects contained in the No Action Alternative (not indicated in Figure) would be implemented as part of each action alternative.

**Priority Habitats with Alternative Four Projects**  
Figure No. 5.5



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## 6. COMPARISON OF ALTERNATIVES

Quantitative comparisons of the alternatives are made using the linear feet of habitat encountered as an indicator of impacts. Lineal impacts to habitats for each alternative are presented in Tables 6.1 and 6.2. Wetlands are excluded from the tables because they are discussed in detail in the *I-405 Corridor Program Draft Wetlands Expertise Report* (DEA, 2001). Each of the Action Alternatives has an impact many times that of the No Action Alternative, and impacts shown in the tables and discussed in the text for the Action Alternatives are in addition to those for the No Action Alternative. Alternative 1, which is transit based, affects 5 times the amount of habitat affected by the No Action Alternative. Alternative 2, which is mixed with an emphasis on transit, impacts nearly 7 times the habitat affected by the No Action Alternative. Alternative 3, which is mixed with an emphasis on HOV and arterials, impacts about 6 times the habitat affected by the No Action Alternative. Alternative 4, which emphasizes expanded arterials throughout the corridor and new roadways without a High-Capacity Transit System, impacts 5 times the habitat affected by the No Action Alternative.

Table 6.1: Comparison of Lineal Impacts to Priority Habitat (in linear feet)

Habitat	No Action Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Bald Eagle Territory	3,600	36,500	50,560	37,660	46,860
Urban Natural Open Space	12,200	30,900	36,760	40,100	21,700
Riparian Area	0	12,340	20,900	13,560	11,120
Total	15,800	79,740	108,220	91,320	79,680

**\* Quantities under Alternatives 1, 2, 3, and 4 are in addition to those identified under the No Action Alternative.**

Because of the less disturbed conditions present in rural areas, impacts to habitat in these areas would be more substantial than habitat impacts in urban and suburban areas. However, the severity of impacts in rural areas is reduced due to the high degree of development already surrounding these areas in both King and Snohomish Counties. Most projects affecting rural areas are in close proximity to developed suburban areas.

In comparison between Alternatives 1 through 4, Alternatives 2 and 3 impact nearly twice the amount of rural land as Alternative 1. Alternative 4 impacts slightly less rural land than Alternative 1.

**Table 6.2: Comparison of Lineal Impacts by Land Use Type (in linear feet)**

Land Use Type	No Action Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Urban	132,528	240,023	537,815	526,146	566,438
Suburban	241,296	237,622	810,033	757,761	978,623
Rural	34,320	1,232	2,288	2,288	1,056
Total	399,144	478,877	1,350,136	1,286,195	1,546,117

**\* Quantities under Alternatives 1, 2, 3, and 4 are in addition to those identified under the No Action Alternative.**

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- CH2M HILL. *I-405 Corridor Program Draft Environmental Justice Expertise Report*. Revised August 2001.
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## 8. ASSUMPTIONS

Lane additions will require clearing of native vegetation, but the amount will vary depending on the amount of existing development in adjacent areas.

Lane additions in unincorporated areas will result in proportionately more impacts to native vegetation than lane additions in incorporated areas.

The nesting bald eagles and great blue herons located within 0.5 miles of roads with proposed improvements could potentially experience disturbance from construction activities.

The disturbance associated with the operation and maintenance of expanded roadways will not pose a substantial threat to priority species.

Undocumented priority species could be present near the alignments.

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**APPENDIX A**  
Major Elements of Alternatives



# Appendix A

## I-405 CORRIDOR PROGRAM

### MAJOR ELEMENTS OF ALTERNATIVES

## 1. TRANSPORTATION DEMAND MANAGEMENT

### **TDM Package Core Assumptions**

- Existing TDM programs will continue (public & private sector)
- Existing public TDM programs will be expanded to meet new market demand
- Implementation of trip reduction targets will be supported by new interlocal or sub-regional agreements
- Strategies are flexible, monitored and adjusted as needed over time (includes tracking trends for Internet, e-commerce)
- Funding is provided for demonstration projects, plus some ongoing funding for new TDM strategies found effective

### **Focus of TDM Package**

SOV and other trip reduction through the use of:

- Incentives
- Increasing access to alternative modes
- Public information, education and promotion
- Land use strategies

<b>Strategies in the TDM Package</b>	
<b><u>VANPOOLING</u></b>	
<ul style="list-style-type: none"> <li>• Maximize vanpooling in the corridor (minimum of a five-fold increase)               <ul style="list-style-type: none"> <li>* Intensive marketing of vanpooling, including start-up subsidies</li> <li>* Use of new “value-added” incentives (e.g., frequent flyer miles for vanpoolers)</li> <li>* Creation of a revolving no-interest loan fund for purchasing vans</li> <li>* 50% fare subsidy</li> <li>* Provide sufficient infrastructure (e.g., small park &amp; ride lots)</li> <li>* Owner-operated vanpool promotion</li> </ul> </li> </ul>	
<b><u>PUBLIC INFORMATION, EDUCATION &amp; PROMOTION PROGRAMS</u></b>	
<ul style="list-style-type: none"> <li>• Establish ongoing public education and awareness program specific to the corridor (focus on issues and transportation alternatives)</li> <li>• Provide traveler information system(s), including interactive ridematch and transit information</li> <li>• Provide personalized trip planning assistance, including for transit</li> </ul>	

## Strategies in the TDM Package

### **EMPLOYER-BASED PROGRAMS**

- Increase work choices
  - Telecommuting, flextime, compressed work schedules, multiple shifts
  - Proximate commuting (assigning employees to work sites close to home)
  - Incentives to employers to offer work choices (e.g., tax credits)
- For current commuter trip reduction program – new incentives and resources to help CTR-affected employers obtain CTR goals (e.g., grants, tax credits, staff support)
- Expanded CTR-like program aimed at smaller employers plus those larger ones not affected by CTR laws (non-regulatory, voluntary based)
- Support development and core operations of transportation management associations (TMA)
- Parking cash-out program incentives and financing

### **LAND USE AS TDM**

Compact, mixed-use, non-motorized and transit friendly (re)development in target areas (urban centers, suburban clusters, key arterials, transit station areas, transit centers, park-and-ride lots)

- Transit-oriented development (TOD)
- Code changes, streamlining processes, local connectivity retrofitting projects to support (re)development
- Programs (code assistance, design review support) to help jurisdictions and developers implement compact (re)development
- New parking management programs

### **OTHER MISCELLANEOUS TDM PROGRAMS**

Innovative transit and vanpool fare media, incentives, demonstrations, matching funds, etc. [e.g., area-wide “Smart Card” (FlexPass) programs for Eastgate, downtown Bellevue, north Renton industrial area, Bothell business parks, Redmond, downtown Kirkland, Tukwila]

- Non-commute trips TDM programs (research and demonstrations)
- Other miscellaneous incentives (local and state tax credit programs, developer incentives)

## 2. EXPANDED TDM PACKAGE

### **Overview**

This major element will include the range of regional pricing actions being evaluated by the PSRC. The potential impacts of the following actions will be examined in the context of the I-405 Corridor:

- ◆ Region-wide congestion pricing (RCP);
- ◆ Fuel taxes (revenue = RCP);
- ◆ Fuel taxes (revenue = 50% RCP);

- ◆ Mileage charge (revenue = RCP);
- ◆ Parking charges;
- ◆ High occupancy toll lanes.

## 2. NEW TRANSIT EXPANSION BY 50% WITHIN STUDY AREA

Transit service levels would be increased by 25% compared to the current King County 6-year plan, assumed to be in place by 2007.

Transit service levels would be increased by 50% compared to the current King County 6-year plan, assumed to be in place by 2007.

## 3. DOUBLE TRANSIT SERVICE WITHIN STUDY AREA

### Overview

Transit service levels would be doubled compared to the current King County 6-year plan, assumed to be in place by 2007. The effects of I-695 on short-term transit service have not been assumed. Transit service coverage and design would also be revised to more closely match travel patterns within the study area. These revisions could include more center-to-center movements, connections between neighborhoods and centers, and development of an appropriate 'grid' transit system within the study area.

## 4. PHYSICALLY SEPARATED HIGH-CAPACITY TRANSIT (HCT)

### Description

A high-capacity transit solution would be designed for the I-405 corridor. The exact technology of this solution would be determined in later studies, but could include busway, light rail, monorail, or similar mode that could operate at speeds of up to 70 mph. The HCT alignment would generally follow the I-405, SR 520 and I-90 freeway corridors in existing freeway, arterial, or railroad right-of-way. The key characteristic of this solution would be that it would have a dedicated alignment, removing it from congestion-induced delays. Bus service would be reconfigured to provide maximum accessibility to the HCT system.

Alternatives 1 and 2 assume a full-scale HCT within the corridor, likely using some form of rail technology. Alternative 3 assumes a bus rapid transit (BRT) concept, building on the existing freeway HOV system.

High Capacity Transit		
Jurisdiction	Project ID*	Projects
Tukwila & Renton	T.HCT-1	HCT- SeaTac to Renton CBD
Renton	T.HCT-2	HCT-Renton CBD to NE 44 <sup>th</sup> (Port Quendall)
Renton, Newcastle & Bellevue	T.HCT-3	HCT- NE 44 <sup>th</sup> (Port Quendall) to Factoria
Bell & Issaquah	T.HCT-4	HCT – Factoria to Issaquah

High Capacity Transit		
Bellevue	T.HCT-5	HCT – Factoria to Downtown Bellevue
Bell & Redmond	T.HCT-6	HCT – Bellevue to Redmond
Bell & Kirkland	T.HCT-7	HCT – Bellevue to Totem Lake
Kirk, King Co. & Woodinville	T.HCT-8	HCT – Totem Lake to Bothell
Bothell & Sno Co.	T.HCT-9	HCT – Bothell to Lynnwood

High Capacity Transit Stations	
Sea-Tac	Sea-Tac
Tukwila	Southcenter
Tukwila & Renton	Tukwila (Longacres)
Renton	Downtown Renton
Renton	North Renton
Renton	Port Quendall
Bellevue	Factoria
Bellevue	Bellevue Transit Center
Bellevue	Bellevue Library
Bell & Kirk	SR 520/Northup Way
Kirkland	Downtown Kirkland (NE 85 <sup>th</sup> Street)
Kirkland	Totem Lake
Woodinville	NE 145 <sup>th</sup> Street
Woodinville	Woodinville
Bothell	NE 195 <sup>th</sup> Street
Bothell	Canyon Park
Snohomish County	164 <sup>th</sup> Street SW (Ash Way)
Bellevue	Eastgate
Bellevue	Lakemont
Issaquah	Issaquah
Bellevue	132 <sup>nd</sup> Avenue NE
Bellevue	148 <sup>th</sup> Avenue NE
Redmond	Overlake (NE 40 <sup>th</sup> Street)
Redmond	Redmond/Town Center
Redmond	Bear Creek
Mercer Island	Mercer Island

## 6. ADD ARTERIAL HOV AND TRANSIT PRIORITY

### Overview

Create lanes, intersection queue jumps and signals that provide priority to HOVs and transit on major arterials in the study area.

Arterial HOV		
Bellevue	R.HOV-36	Coal Creek Pkwy I-405 to Forest Drive
Bellevue	R.HOV-37	NE 8th Street I-405 to 120th Ave NE
Kirkland, Redmond	R.HOV-38	NE 85th St Kirkland Way to 148th Ave NE
Kirkland	R.HOV-39	NE 116th 98th Ave NE to 124th Ave NE
Kirkland	R.HOV-40	NE 124th 100th Ave NE to 132 Ave NE
Bothell	R.HOV-41	SR 527 From SE 228th St to SR 524
Renton	R.HOV-43	SR 169 - SR 405 to Riverview Park vicinity - HOV/Transit Preferential treatment.
Renton	R.HOV-44	SW 27th St Corridor in Renton - Oaksdale Ave to SR 167
Redmond	R.HOV-47	Avondale Rd from Novelty Hill Road to Avondale Way Construct SB HOV lane
Renton, King Co	R.HOV-48	SW 43 St (SR 167 to 140 Ave SE)
Renton	R.HOV-49	Logan Ave N / N 6 St (S 3 St to Park Dr)
Renton	R.HOV-51	Park Dr - Sunset Blvd (Garden Ave to Duvall Ave NE)
Kenmore	R.HOV-53	68 Ave NE (Smds Rd to SR 522) - Construct NB HOV lane
Redmond	R.HOV-55	Willows Rd (Redmond Wy to NE 124 St)
Kirkland, Bell	R.HOV-56	Lake Wa Blvd (SR 520 to Yarrow Bay) - SB HOV lane
Kirkland	R.HOV-57	NE 68 St/NE 72 Pl (I-4405 Vicinity) – Que Bypass
Bellevue	R.HOV-60	Bellevue Way - I-90 to South Bellevue Park and Ride

## 7. HOV EXPRESS ON I-405 WITH DIRECT ACCESS RAMPS

### Overview

Complete the series of ramps connecting arterials and freeways directly to HOV lanes on I-405. This allows carpools, vanpools and buses to use the HOV lanes without weaving across other traffic. HOV direct access ramps have already been designed by Sound Transit in downtown Bellevue and Kirkland, and design studies are starting for HOV ramps in downtown Renton.

HOV Interchange Ramps (Direct Access)		
Tukwila	R.HOV-25	SR 5 I/C @ Tukwila Fwy to Fwy HOV ramps,
Renton	R.HOV-26	SR 167 I/C Fwy to Fwy HOV ramps,
Bellevue	R.HOV-27	SR 90 I/C Fwy to Fwy HOV ramps,
Bellevue	R.HOV-28	SR 520 Fwy to Fwy HOV ramps,
Bothell	R.HOV-29	SR 522 Fwy to Fwy HOV Ramps
Sno. Co.	R.HOV-30	SR 5 I/C @ Swamp Creek Fwy HOV ramps.
Kirkland	R.HOV-61	NE 85th
ST	R.HOV-101	I-405 @ Lind – HOV Direct Access
Newcastle	R:HOV-65	112th St SE (In-Line Station)

Committed HOV Projects		
Bellevue	HOV-01	I-405 at NE 4th/6th/8th (Bellevue)/Construct new HOV direct access at NE 6th, Improve arterial capacity at NE 4th/8th interchanges
Bellevue	HOV-02	I-90 (Eastgate)/New I-90 HOV direct access connection to P&R
Renton	R.HOV-32	Between Sunset and SR-900 /Park Ave interchange in Renton
ST	R:HOV-66	I-405 at 128th St/HOV direct access improvements
Renton	R.HOV-33	NE 44th I/C - HOV Direct Access and Arterial Improvements(Assumes Port Quendall)
WSDOT	HOV-14	I-405 (I-5 Swamp Creek to SR 527)/Construct NB and SB HOV lanes total 6 lanes
Bothell	R.HOV-62	SR 522 Campus Access
Bothell	R.HOV-63	SR 527 Flyer Stop
ST	HOV-102	Woodinville Arterial Enhancements/HOV arterial enhancements

## 8. ADD PARK-AND-RIDE CAPACITY TO MEET DEMAND

### Overview

Provides additional park-and-ride capacity at existing locations and creates selected new lots based on forecasted transit and carpool demand. The locations initially identified for expansion are listed below. These locations will be refined during the evaluation process.

Park and Rides		
Renton	T.PR-3	Renton East Highlands new Park and Ride
Tukwila & Renton	T.PR-6	Tukwila Commuter Rail (Longacres)
King County	T.PR-5	140th Ave SE and Petrovitsky Rd Vicinity
King County	T.PR-8	SR 169 and 140th WY SE
King County	T.PR-9	Petrovitsky Rd and 157th Ave SE
King County	T.PR-10	140th Ave SE and SE 192nd
King County	T.PR-11	SR 515 and SE 208th
Kent & Renton	T.PR-12	SR 167 and SW 43rd
Kent & Renton	T.PR-13	SR 167 and 84th Ave
Redmond	T.PR-17	Willows Rd @ NE 100th
Redmond	T.PR-18	SR 202 @ NE 100th
Bellevue & Kirkland	T.PR-20	South Kirkland
Redmond	T.PR-21	Overlake
Bellevue	T.PR-22	South Bellevue
Bellevue	T.PR-23	Newport (112 <sup>th</sup> Ave. SE)
King County	T.PR-24	NE 160th/Brickyard Rd
Bothell	T.PR-25	Canyon Park (I-405 and SR 527)
Tukwila	T.PR-30	Tukwila
Kirkland	T.PR-31	Houghton
Kirkland	T.PR-32	Kingsgate
Medina	T.PR-33	Evergreen Point
Bellevue	T.PR-34	Wilburton
King County	T.PR-35	Lakemont
Redmond	T.PR-36	Redmond
Redmond	T.PR-37	Bear Creek
Bothell	T.PR-38	Bothell
Kenmore	T.PR-39	Northshore
Kenmore	T.PR-40	Kenmore
Woodinville	T.PR-41	Woodinville
Mercer Island	T.PR-42	Mercer Island
Bellevue	T.PR-43	Eastgate

## 9. ADD TRANSIT CENTER CAPACITY TO MEET DEMAND

### Overview

Expand existing transit centers and create new transit centers to accommodate increased transit service. The specific locations for expansion and new centers will be identified during the evaluation process. Alternatives 1, 2, and 3 will require transit center capacity to accommodate a significant increase in transit service, at designated HCT stations, and at feeder bus connections. A partial listing is below.

Transit Center Capacity		
Renton	T.TC-6	Downtown Renton
Bellevue	T.TC-8	Downtown Bellevue
Redmond	T.TC-9	Overlake
Redmond	T.TC-10	Redmond/Town Center
Kirkland	T.TC-12	Downtown Kirkland
Kirkland	T.TC-14	Totem Lake

## 10. BASIC I-405 IMPROVEMENTS

### Overview

This major element fixes existing bottlenecks and locations with safety deficiencies along I-405.

Basic I-405 Improvement Projects		
Jurisdiction	Project ID*	Projects
Renton	R.BI.1	SR 167 Interchange - Direct Connection with auxiliary lane SB SR 169 to SR 167
Kirkland	R.BI.2	Continue NB climbing Lane from NE 70th to NE 85th and continue as auxiliary Lane to NE 116th
Kirkland	R.BI.3	SB auxiliary Lane NE 124th to NE 85th
Bellevue	R.BI.4	I-90 / Coal Creek Interchange
Bothell, King Co, Kirkland	R.BI.5	SB SR 522 to 124th continue climbing lane as an auxiliary lane
Bothell	R.BI.6	NB auxiliary lane SR 522 to SR 527
Renton	R.BI.7	Kennydale Hill climbing lane - SR 900 to 44th - NB 900 to 30th, SB 44th - 30th
Bellevue	R.BI.8	I-90 to Bellevue SB HOV direct connection to I-90 west
Bellevue	R.BI.9	NB auxiliary lane I-90 to NE 8th
Bellevue	R.BI.10	Increase SR 405 to Eastbound SR 520 Ramp capacity
Renton	R.BI.14	NB Auxiliary Lane I-5 to SR 167
Various	R.FR-24	Improve interchange geometrics at all major truck routes (WB-20 Design Criteria)
WSDOT	R-55	I-405/SR 167 Interchange/Construct new southbound I-405-to-southbound SR 167 ramp modification.



## 11. ADD 2 GENERAL PURPOSE LANES EACH DIRECTION ON I-405

Add up to 2 general purpose lanes to I-405 through widening of the existing freeway. A design option is to create collector-distributor lanes in selected corridor segments (See Element 12).

## 12. PROVIDE COLLECTOR DISTRIBUTOR LANES ON I-405

### Overview

Collector- Distributor lanes provide more time for traffic to safely enter or exit from roadway by providing lanes removed from general travel. This is being considered as a design option to handle the addition of one or two general purpose lanes in each direction along I-405 in certain sections. Collector-Distributor lanes have been included as parts of other elements.

## 13. ADD TWO EXPRESS LANES EACH DIRECTION ON I-405

### Overview

This element consists of a four-lane express facility designed to operate with limited interchanges along the length of I-405. The express lanes would be physically separated from the rest of I-405 through the use of barriers. Certain segments could operate within the median of I-405, while other segments would need to be elevated, in tunnel, or on separate alignments.

The express lanes could operate as a general purpose facility or as a managed facility, such as a 'High Occupancy Toll (i.e. HOT) lane. Certain users could be allowed to use the express lanes for free, while other users could be allowed to 'buy-in' to available capacity. The capacity would be priced depending upon demand.

Express Lanes – 2 Lanes each Direction between Major Interchanges		
Jurisdiction	Project ID	Projects
Tukwila, Renton	R.TC-20	Add Express lanes - SR 5 Tukwila to SR 167
Renton	R.TC-21	Add Express lanes - SR 167 to SR 900 north Renton I/C
Renton, Newcastle, Bellevue	R.TC-22	Add Express lanes -SR 900 North Renton I/C to SR 90
Bellevue	R.TC-23	Add Express lanes - SR 90 to SR 520
Bellevue, Kirkland	R.TC-24	Add Express lanes - SR 520 to NE 70th
Kirkland	R.TC-25	Add Express lanes - NE 70th to NE 124th
Kirkland, King County, Bothell	R.TC-26	Add Express lanes - NE 124th to SR 522
Bothell	R.TC-27	Add Express lanes - SR 522 to SR 527
Bothell and Snohomish Co.	R.TC-29	SR 527 to vicinity of Damson Road
Renton	R.TC-28	Add Express lanes- on SR 167 north of 180th up to I-405

Express Lanes –Access Locations		
Snohomish Co	R.TC-30	Northern end to Express lanes - Between SR 527 and I-5
King Co/Kirkland	R.TC-31	Slip Ramp- South of NE 160th St
Kirkland	R.TC-32	Slip Ramp- South of NE 70th St
Bellevue, Newcastle	R.TC-33	Slip Ramp- South of Coal Creek Pkwy
Renton	R.TC-34	Interchange access location- SR 167

## 14. WIDEN SR 167 BY 1 LANE EACH DIRECTION TO KENT (STUDY AREA BOUNDARY)

### Overview

SR 167 would be widened by one lane in each direction to accommodate additional demands due to growing demands and the effects of improvements at the I-405/SR 167 interchange. The widening is assumed to extend at least to the study area boundary in Kent. Alternative 3 will consider the potential to add a total of two lanes in each direction to SR 167 within 1 mile of I-405, due to the substantial capacity additions assumed for I-405. This element does not presume that SR 167 would be redesignated as I-405, although each of these improvements would be compatible with such a redesignation if it occurs.

## 16. IMPROVE CONNECTING FREEWAY CAPACITY TO I-405

### Overview

Enhance the capacity of connecting freeways by one lane in each direction (for a distance of approximately ½ to 1 mile on both sides of I-405) to avoid bottlenecks at the connections to I-405.

Connecting Freeway Capacity (One Lane, Each Direction)		
Jurisdiction	Project ID	Projects
Tukwila	R.CF.1	SR 518 I-405 to SR 99/Airport Access
Bellevue	R.CF.3	I-90 South Bellevue to Eastgate
Bellevue	R.CF.4	SR 520 Bellevue Way to 148 <sup>th</sup> Avenue NE
Bothell, Woodinville	R.CF.5	SR 522 Bothell to NE 195th
Snohomish Co, Lynnwood	R.CF.6	SR 525 I-405 to SR 99
Renton, Kent	R.CF.8	SR 167 I-405 to Study Area Boundary
Tukwila	R.CF.9	I-5 at Tukwila
Lynnwood	R.CF.10	I-5 at Swamp Creek – 196 <sup>th</sup> to 164 <sup>th</sup>

## 17. IMPLEMENT PLANNED ARTERIAL IMPROVEMENTS

### Overview

This major element involves the implementation of several arterial improvements called for in local agency plans and the Eastside Transportation Program (ETP). The ETP has been an ongoing process by regional, county and local governments to coordinate transportation planning and funding in East King County. Many of the ETP projects have already been examined in detail by the agencies involved and have been determined to be effective in addressing a variety of transportation issues.

Eastside Transportation Projects - Committed Projects		
Jurisdiction	Project ID	Projects
Bellevue	R-08	NE 29th PI (148th Ave NE to NE 24th St)/Construct new 2-lane road
Bellevue	R-101	150th Ave SE---Widen to 7 lanes from SE 36th to SE 38th; add turn lanes
KCDOT	R-40	Juanita-Woodinville Way (NE 145 St to 112th Ave NE) Widen to 5 lanes + CGS, walkway/pathway
KCDOT	R-47	NE 124 St (Willows Rd to SR 202)--- Widen to 4/5 lanes + CGS, bike facilities; traffic signal.
Kirkland	R-21	NE 120 St (Slater Ave to 124 Ave NE)--- Construct new 3-lane roadway with ped/bike facilities
Redmond	R-111	Willows Rd Corridor Improvements-- Channelization of Willows Rd/Redmond Way intersection and widening of Willows Rd from NE 116th to NE 124th
Redmond	R-26	NE 90 St (Willows Rd to SR 202)--- Construct new 4/5 lanes + bike facilities
Redmond	R-28	West Lake Sammamish Parkway (Leary Way to Bel-Red Rd)--- Widen to 4/5 lanes + CGS, bike lanes
Renton	R-36	Oakesdale Ave SW (SW 31st to SW 16th)--- Construct new 5 lane roadway with CGS
Snohomish Co.	R-10	SR 524 (24 St SW to SR 527)--- Widen to 4/5 lanes including sidewalks, bike lanes
Snohomish Co.	R-117	39th Ave SE Realignment at SR 524 and York Rd--- Construct 4-way intersection to replace 2 offset intersections
Bothell, Snohomish Co.	R.AC-21	120th NE/39th SE - NE 95th to Maltby Rd - 4/5 lanes including new connection
Woodinville	R-51	Woodinville-Snohomish Rd/140 Ave NE (NE 175 St to SR 522)--- Widen to 4/5 lanes + CGS, bike lanes
Woodinville/WSDOT	R-25	SR 202 Corridor Improvements(East Lake Sammamish Pkwy to Sahalee Way)--- Widen to 3/5 lanes; intersection improvements with bike/ped facilities
KCDOT	R-39	140 Ave SE (SR 169 to SE 208 St)--- Widen to 5 lanes SR 169 to SE 196 St, widen for turn channels on SE 196. Combines 2 King County CIP projects. A major North-South arterial which serves the Soos Creek Plateau and Fairwood.

Eastside Transportation Projects - Planned Projects		
Jurisdiction	ETP #	Projects
Bellevue	R.PA-2	148 Ave SE (SE 24 St to SE 28 St) New SB lane from SE 24 St to the WB I-90 on-ramp (ETP 203)
Bothell	R.PA-3	SR 522 Multimodal Corridor Project--- Widen SR-522 mostly within existing ROW to provide transit lanes, safety improvements, consolidated driveways & left turn lanes; and sidewalks. (ETP R-107)
Bothell	R.PA-4	SR 524 (SR 527 to Bothell City Limit)--- Widen to 5 lanes + CGS, bike facilities (class III) (ETP R-11)
KCDOT	R.PA-5	SE 212 Way/SE 208 St (SR 167 to Benson Rd/SR 515)--- Widen to 6 lanes + bike facilities, Transit/HOV preferential treatment, turn channels. (ETP R-46)
KCDOT	R.PA-8	NE 124/128 St (SR 202 to Avondale Rd)--- Widen to 4/5 lanes including bike & equestrian facilities (ETP 164)
KCDOT	R.PA-10	NE 132 St Extension (132 Ave NE to Willows Rd Ext.)--- Construct new 3 lane arterial with CGS, bike lanes (ETP 61)
Kenmore/KCDOT	R.PA-11	68 Ave NE (Simonds Rd to SR 522)--- Construct NB HOV lane total of 5/6 lanes (ETP 22)
Kirkland	R.PA-12	124 Ave NE (NE 85 St to Slater Rd NE)---- Widen to 3 lanes (s. of NE 116th St, 5 lanes n. of NE 116th St with ped/bike facilities (ETP R-23)
Kirkland	R.PA-13	NE 132 St (100 Ave NE to 116 Way NE)--- Widen to 3 lanes + CGS, Bike lane (ETP R-124)
Kirkland	R.PA-14	NE 100 St (117 Ave NE to Slater Ave) --- Construct bike/pedestrian/emergency Vehicle overpass across I-405 (ETP 309)
Newcastle	R.PA-15	Coal Creek Pkwy (SE 72 St to Renton City Limits)--- Widen to 4/5 lanes + CGS, bike lanes, traffic signals (ETP R-24)
Redmond	R.PA-16	Redmond 148th Ave NE Corridor - 3 projects--- Turn lane and channelization improvements along corridor – BROTS; (ETP R-112)
Redmond	R.PA-17	Bear Creek Pkwy--- Construct new 162nd Ave NE arterial and new 72nd St arterial w/ bike/ped and CSG; widen Bear Creek Pkwy (ETP R-110)
Redmond	R.PA-18	Union Hill Rd (Avondale Rd to 196 Ave NE)--- Widen to 4/5 lanes with bike facilities (ETP R-27)
Renton	R.PA-19	Duvall Ave NE (NE 4 St to NE 25 Court -City Limits)--- Widen to 5 lanes + CGS, bikeway (ETP R-31)
Renton	R.PA-20	Oakesdale Ave SW (Monster Rd to SR 900) Replace Monster Rd Bridge; widen to 4/5 lanes +Bike Lanes + CGS (ETP R-35)
Renton	R.PA-21	Rainier Ave / Grady Way (intersection)-- Grade separation (ETP R-33)

Eastside Transportation Projects - Planned Projects		
Renton	R.PA-22	SW Grady Way (SR 167 to SR 515)-- Rechannelize and modify signals for a continuous eastbound lane (ETP R-37)
Renton	R.PA-23	SR 167 at East Valley Road--- New southbound off-ramp and signalization at East Valley Road (ETP 255)
Renton/ KCDOT	R.PA-24	Soos Creek Regional Links --- Placeholder for Trans-Valley Study (ETP R-115)
Woodinville	R.PA-25	SR 522 Interchange Package(SR 522/SR 202 &SR522/195th St)-- Access improvements and new freeway ramps (ETP R-53) (See R.AC-30)
Woodinville	R.PA-26	SR202 Corridor Package (SR202/148th Ave & SR202/127th Place)--- Intersection improvements (ETP R-54)
WSDOT	R.PA-27	SR 520/SR 202 Interchange-- Complete interchange by constructing a new ramp and thru lane on 202 to SR 520 (ETP R-29)
WSDOT	R.PA-28	SR 202 / 140 Place NE (NE 124 St to NE 175 St)--- Widen 4/5 lanes (ETP R-43) (See R.AC-17, 18)

## 18. EXPAND CAPACITY ON NORTH-SOUTH ARTERIALS

### Overview

This element expands arterial capacity to provide connected north-south travel. This element would facilitate vehicular movement without requiring as many trips along I-405.

North-South Arterial Projects		
King Co	R.AC-2	138th Ave - Petrovitsky Rd to SR 169- Add 1 lane
King Co, Renton	R.AC-3	138th Ave SE - Construct roadway link to 4/5 lanes- SR 169 to NE 4th St
Redmond	R.AC-15	Willows Rd- NE 90th St to NE 124th St- Add 1 lane each direction
King Co, Woodinville	R.AC-16	Willows Rd- NE 124th St to NE 145th St- construct new facility -4/5 lanes
Woodinville	R.AC-17	SR 202- NE 145th St to SR 522- widen to 5 lanes
Redmond, King County, Woodinville	R.AC-18	SR 202 - NE 90th to NE 145th
Bothell, Snohomish County, Mill Creek	R.AC-20	SR 527/Bothell Everett Hwy - SR 522 to SR 524 - Widen by 1 lane each direction
Bothell, Woodinville	R.AC-30	SR 202 connection across SR 522 to 120th
Tukwila	R.AC-35	SR 181- S 180th to S 200th
Tukwila	R.AC-36	SR 181- 144th to Strander Blvd.
Tukwila	R.AC-37	Southcenter Blvd - Tukwila Pky to Strander Blvd

## 19. UPGRADE ARTERIAL CONNECTIONS TO I-405

### Overview

This element provides for upgrading arterial connections to I-405. These projects are intended to improve operations at on- and off-ramps as well as on the arterials themselves. An additional lane in each direction was assumed for these arterials, although further analysis may show that similar benefits could be achieved through selected intersection improvements in some cases.

Arterial Interchange Improvements (One Lane Each Direction)		
Jurisdiction	Project ID	Projects
Tukwila	R.IC-3	SR 181 West Valley Highway/ Interurban
Renton	R.IC-4	SR 169 Maple Valley Hwy SR 900 to NE 5th
Bellevue	R.IC-6	Coal Creek Pkwy I-405 to Factoria Blvd.
Kirkland, Redmond	R.IC-8	NE 85th St-Kirkland Way to 124th
Kirkland	R.IC-9	NE 116th- 114th Ave NE to 124th Ave NE
Kirkland	R.IC-10	NE 124th- 113th Ave NE to 124th Ave NE
Kirkland	R.IC-26	NE 132nd - 113th to 124th Ave NE
Bothell	R.IC-11	SR 527-228th to SR 524
Kirkland, King Co	R.IC-14	New half diamond interchange to/from north at NE 132nd St
Bothell	R.IC-21	New SR 405 Interchange at 240th Street SE(Bothell)
Bothell	R.IC-24	NE 160th Street-112th Ave to Juanita/Woodinville Way

## 21. CORRIDOR PEDESTRIAN AND BICYCLE IMPROVEMENTS

### Overview

Non-motorized improvements throughout the corridor provide needed connections between modes (e.g. pedestrian overpasses from park and rides to freeway bus stops) and allow for commutes or trips to be made by walking or biking. Alternative 3 will exclude all of the 'long-distance' trails (identified below under the heading Pedestrian/Bicycle Connections) from this element. These improvements need further refinement in the context of other major elements in the alternatives.

Pedestrian/Bicycle ( I-405 Crossings)		
Bellevue	NM. CR-1	Lk Washington Blvd/112th Ave. SE - crossing I-405 from 106th Ave. SE to 112th Place SE - Add sidewalks
Bothell	NM. CR-2	Fitzgerald Rd/27th Ave. - crossing I-405 from 228th St. SE to 240th St. SE - Add ped/bike facility
King County	NM. CR-3	SR-524 (Filbert Road) - crossing I-405 from North Rd to Locust Way - Add sidewalk/paved shoulder
King County	NM. CR-4	Damson Road - crossing I-405 from 192nd St SW to Logan Rd - Add sidewalk/paved shoulder
Renton	NM. CR-5	NE Park Drive - crossing I-405 from SR-900/Sunset Blvd to Lake Wash Blvd - Add sidewalk/paved shoulder
Renton	NM. CR-6	Jackson SW/Longacres Dr SW - crossing I-405 from S. Longacres Way to Monster Rd SW - Add sidewalk/paved shoulder
Bothell	NM. CR-7	Connection between Sammamish River Trail and North Creek Trail - between SR-522 and NE 195th St. - Add ped/bike over-crossing of I-405
Bothell	NM. CR-8	SR-527 - crossing I-405 from 220th St SE to 228th St SE - ped/bike facility

Pedestrian/Bicycle Connections		
Bellevue	NM.P&B-4	Lake Washington Blvd - SR 405 to SE 60th - Add ped/bike facilities
Bellevue, Kirkland	NM.P&B-2	BNSF Right of Way - SE 8th to Totem Lake - Add ped/bike facility.
Bellevue, Newcastle, Renton	NM.P&B-6	Lake Washington Blvd/112th - SE 60th to May Creek I/C - Add ped/bike facility
Bothell	NM.P&B-5	North Creek Trail Link - 240th to 232nd - Add ped/bike trail.
Renton	NM. P&B 14	Cedar River Trail S. Extension - I-405 to Burnett Ave - Add ped/bike facilities (ETP NM-17)
Renton	NM. P&B 15	Cedar River Trail/Lake Washington Blvd Connector - Cedar River Trail to Lk Wash Blvd Loop - Add ped/bike facilities (ETP NM-15)
Renton	NM. P&B 16	Cedar-Duwamish Trail Connection - I-405 to Interurban Ave. S. - Add ped/bike facilities
Renton	NM. P&B 17	I-405/SR-167 trail connection - Lind Ave. SE to Talbot Rd S. - Add trail connection
Renton/Tukwila	NM. P&B 18	I-405/I-5 - via or around I-405/I-5 interchange - Add ped/bike facilities
Tukwila	NM. P&B 19	SR-181/W. Valley Hwy - crossing I-405 from Strander Blvd to Fort Dent Way - Add bike lanes

## 22. I-405 CORRIDOR INTELLIGENT TRANSPORTATION SYSTEM ENHANCEMENTS

### Overview

This major element provides ITS enhancements to facilitate more reliable traffic flow.

I-405 Corridor ITS Enhancements		
Jurisdiction	Project ID	Projects
Various	ITS.1	Add Camera Coverage to decrease TMC blind spots
Various	ITS.2	Complete Ramp Metering
Various	ITS.4	Dual Lane Ramp Metering
Various	ITS.5	Increased Incident Response
Various	ITS.6	Traffic adaptive control on arterials
Various	ITS.7	TIS before all major decision points
Various	ITS.8	WSDOT support of in-vehicle traffic information
Various	ITS.9	Arterial camera coverage

## 23. I-405 CORRIDOR FREIGHT ENHANCEMENTS

### Overview

This major element focuses on improvements specific to freight movements. Note that freight will benefit as well from general purpose traffic expansion described in other elements.

I-405 Corridor Freight Enhancements		
Jurisdiction	Project ID	Projects
Renton	R.FR-10	Modify SR 167 Interchange for East to South Freight movements
Various	R.FR-11	Improve truck flow with ITS
Various	R.FR-23	Remote area for overnight freight parking and staging for early morning deliveries
Various	R.FR-26	Full depth shoulders for truck usage on key freeways and arterials)
Various	R.FR-27	Traveler Information System (TIS) on SR 167 for I-405 "options"
Various	R.FR-28	TIS on I-5 for SR 18/I-90; and 164th to I-405; and South 200th to I-405
Various	R.FR-29	Centralized fax/radio for real time congestion reporting for dispatchers and truck drivers. Leverage WSDOT video linkages (e.g., a "T-911" number).
Various	R.FR-30	Hours of operation and service periods optimized—"JIT" redefined for applicable service sectors (e.g. restaurants)
Various	R.FR-32	Light cargo delivery using Sound Transit service



**APPENDIX B**  
**Alternatives Project Matrix**

**APPENDIX B**
**I-405 Corridor Program EIS Alternatives Project Matrix**

				<b>Alternatives</b>				
		<b>Jurisdiction</b>	<b>ACTIONS</b>	<b>5</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Element #				No Action	HCT/TDM	Mixed Mode with HCT/Transit Emphasis	Mixed Mode	General Capacity
<b>10.</b>	<b>Basic I-405 Improvement Projects</b>							
	Renton	R.BI-1 & R.FR-10	SR 167 Interchange - Direct Connection with auxiliary lane SB SR 169 to SR 167		✓	✓	✓	✓
	Kirkland	R.BI-2	Continue NB climbing Lane from NE 70th to NE 85th and continue as auxiliary Lane to NE 116th		✓	✓		✓
	Kirkland	R.BI-3	SB auxiliary Lane NE 124th to NE 85th		✓	✓		✓
	Bellevue	R.BI-4	I-90 / Coal Creek Interchange		✓	✓	✓	✓
	Both, King Co, Kirk	R.BI-5	SB SR 522 to 124th continue climbing lane as an auxiliary lane		✓	✓		✓
	Bothell	R.BI-6	NB auxiliary lane SR 522 to SR 527		✓	✓		✓
	Renton	R.BI-7	Kennydale Hill climbing lane - SR 900 to 44th - NB 900 to 30th, SB 44th - 30th		✓	✓		✓
	Bellevue	R.BI-8	I-90 to Bellevue SB HOV direct connection to I-90 west		✓	✓		✓
	Bellevue	R.BI-9	NB auxiliary lane I-90 to NE 8th		✓	✓		✓
	Bellevue	R.BI-10	Increase SR 405 to Eastbound SR 520 Ramp capacity		✓	✓		✓
	Renton	R.BI-14	NB Auxiliary Lane I-5 to SR 167		✓	✓		✓
	Various	R.FR.24	Improve interchange geometrics at all major truck routes (WB-20 Design Criteria)		✓	✓	✓	✓
<b>10.</b>	<b>Committed Freeway Projects</b>							
	Joint	R-17 & R-17(17)	I-90/SR 900 Interchange and SR 900 improvements/Interchange reconfiguration Outside of Study Area					
	Joint	R-19	I-90/Sunset Way Interchange/Complete interchange and upgrade nonmotorized connections. Outside of Study Area					
	WSDOT	R-55	I-405/SR 167 Interchange/Construct new southbound I-405-to-southbound SR 167 ramp modification.	✓	✓	✓	✓	✓
	<b>SR 405 Through Capacity (TC)</b>							
<b>11.</b>	<b>Two additional GP lanes in each direction</b>							
	Tukwila, Renton	R.TC-1	Two additional GP lanes in each direction - SR 5 Tukwila to SR 167				✓	
	Renton	R.TC-2	Two additional GP lanes in each direction - SR 167 to SR 900/North Renton I/C				✓	
	Renton, Nwcas, Bel	R.TC-3	Two additional GP lanes in each direction - SR 900/North Renton I/C to SR 90				✓	
	Bellevue	R.TC-4	Two additional GP lanes in each direction - SR 90 To SR 520				✓	
	Bellevue, Kirkland	R.TC-5	Two additional GP lanes in each direction - SR 520 to NE 70th				✓	
	Kirkland	R.TC-6	Two additional GP lanes in each direction - NE 70th to NE 124th				✓	
	Kirk, K C, Both	R.TC-7	Two additional GP lanes in each direction - NE 124th SR 522				✓	
	Bothell, Sno Co	R.TC-8	Two additional GP lanes in each direction - SR 522 to SR 527				✓	
	Sno Co	R.TC-9	Two additional GP lanes in each direction - SR 527 to SR 5 Swamp Creek				✓	
<b>13.</b>	<b>Express Lanes- 2 lanes each direction between major interchanges</b>							
	Tukwila, Renton	R.TC-20 + R.TC-29a	Add Express lanes - SR 5 Tukwila to SR 167					✓
	Renton	R.TC-21	Add Express lanes - SR 167 to SR 900 North Renton					✓
	Ren, Nwcas, Bel	R.TC-22 + R.TC-33	Add Express lanes -SR 900 North Renton I/C to SR 90					✓
	Bellevue	R.TC-23	Add Express lanes - SR 90 to SR 520					✓
	Bellevue, Kirkland	R.TC-24 + R.TC-32	Add Express lanes - SR 520 to NE 70th					✓
	Kirkland	R.TC-25	Add Express lanes - NE 70th to NE 124th					✓
	Kirk, K C, Both	R.TC-26 + R.TC-31	Add Express lanes - NE 124th to SR 522					✓
	Bothell, Sno Co	R.TC-27	Add Express lanes - SR 522 to SR 527					✓
	Sno. Co	R.TC-29 + R.TC-30	Add Express Lanes - SR 527 to SR 5 Swamp Creek					✓
	Renton	R.TC-28	Add Express lanes- on SR 167 north of 180th up to I-405					✓

\* Evaluated within another project

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Element #				No Action	HCT/TDM	Mixed Mode with HCT/Transit Emphasis	Mixed Mode	General Capacity
<b>13. Express Lanes - Access Locations</b>								
	Tuk & Renton	R.TC-29a & R.TC-20	Southern end to Express lanes - Between SR 181 and SR 167					✓ *
	Snohomish Co	R.TC-30 & R.TC-29	Northern end to Express lanes - Between SR 527 and I-5					✓ *
	King Co,Kirkland	R.TC-31 & R.TC-26	Slip Ramp- South of NE 160th St					✓ *
	Kirkland	R.TC-32 & R.TC-24	Slip Ramp- South of NE 70th St					✓ *
	Bellevue, Newcastle	R.TC-33 & R.TC-22	Slip Ramp- South of Coal Creek Pkwy					✓ *
	Renton	R.TC-34	Interchange access location- SR 167					✓
<b>14. Widen SR 167 by 1 lane each direction to study Area boundary</b>								
	Renton, Kent	R.CF-8	SR 167 I-405 to Study Area Boundary			✓	✓	✓
<b>14A. SR 167 / I-405 Interchange Improvements</b>								
	Renton	R.FR-10 & R.BI-1	SR 167/I-405 Interchange Add Directional Ramps for major movements			✓ *	✓ *	✓ *
<b>16. Connecting Freeway Capacity (Matched to fit I-405 Improvements)</b>								
	Tukwila	R.CF-1	SR 518 I-405 to SR 99/Airport Access			✓	✓	✓
	Bellevue	R.CF-3	I-90 South Bellevue to Eastgate				✓	✓
	Bellevue	R.CF-4	SR 520 Bellevue Way to 148th					✓
	Bothell, Woodin	R.CF-5	SR 522 Bothell to NE 195th			✓	✓	✓
	Sno Co, Lynnwood	R.CF-6	SR 525 I-405 to SR 99			✓	✓	✓
	Tukwila	R.CF-9	I-5 at Tukwila			✓	✓	✓
	Lynnwood	R.CF-10	I-5 at Swamp Creek - 44th to 155th			✓	✓	✓
<b>10A. One additional GP or Auxiliary lane in each direction</b>								
	Tukwila,Renton	R.TC-9	One additional GP lanes in each direction - SR 5 Tukwila to SR 167			✓		✓
	Renton	R.TC-10	One additional GP lanes in each direction - SR 167 to SR 900/North Renton I/C			✓		✓
	Ren, Nwcas,Bel	R.TC-11	One additional GP lanes in each direction - SR 900/North Renton I/C to SR 90			✓		✓
	Bellevue	R.TC-12	One additional GP lanes in each direction - SR 90 To SR 520			✓		✓
	Bellevue,Kirkland	R.TC-13	One additional GP lanes in each direction - SR 520 to NE 70th (Verify need for additional through capacity on this section)			✓		✓
	Kirkland	R.TC-14	One additional GP lanes in each direction - NE 70th to NE 124th			✓		✓
	Kirk,K C,Both	R.TC-15	One additional GP lanes in each direction - NE 124th SR 522			✓		✓
	Bothell,Sno Co	R.TC-16	One additional GP lanes in each direction - SR 522 to SR 527			✓		✓
	Sno. Co	R.TC-17	One additional GP lanes in each direction - SR 527 to SR 5 Swamp Creek			✓		✓
<b>18. Arterial Capacity (AC) Actions</b>								
	King Co	R.AC-2 & R-39	138th Ave - Petrovitsky Rd to SR 169- Add 1 lane. See R-39					
	King Co, Renton	R.AC-3	138th Ave SE - Construct roadway link to 4/5 lanes- SR 169 to NE 4th St				✓	✓
	Ren, Nwcas,Bel	R.AC-4	140th Ave/Coal Creek Pkwy- Widen to 6 lanes to I-405					
	Redmond	R.AC-15 & R-111	Willows Rd- NE 90th St to NE 124th St- Add 1 lane each direction					✓ *
	King Co,Woodin	R.AC-16	Willows Rd- NE 124th St to NE 145th St- construct new facility -4/5 lanes				✓	✓
	Woodinville	R.AC-17 & R.PA-28	SR 202- NE 145th St to SR 522- widen to 5 lanes				✓ *	✓ *
	Red,K C,Woodin	R.AC-18 & R.PA-28	SR 202 - NE 90th to NE 145th					✓ *
	Ren, K C, Issaqu	R.AC-19 & R.IC-5	SR 900 - SR 405 to Edmonds. Additional capacity is not needed					
	Both,S C,Mill Cr	R.AC-20	SR 527/Bothell Everett Hwy - SR 522 to SR 524 - Widen by 1 lane each direction					✓
	Both,Woodin	R.AC-30 & R.PA-25	SR 202 connection across SR 522 to 120th				✓ *	✓ *
	Bothell	R.AC-34	120th Ave NE - SR 522 to NE 195th ( 4 lns existing additional not needed)					

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Element #				No Action	HCT/TDM	Mixed Mode with HCT/Transit Emphasis	Mixed Mode	General Capacity
	Tukwila	R.AC-35	SR 181- S 180th to S 200th					✓
	Tukwila	R.AC-36& R.IC-3	SR 181- 144th to Strander Blvd.					✓ *
	Tukwila	R.AC-37	Southcenter Pky - Tukwila Pky to Strander Blvd					✓
<b>19.</b>	<b>Arterial Interchange Improvements (Matched to fit I-405 Improvements)</b>							
	Tukwila	R.IC-3 & R.AC-36	SR 181 West Valley Highway/ Interurban See R.AC-36			✓	✓	✓
	Renton	R.IC-4 & R.HOV-43	SR 169 Maple Valley Hwy SR 900 to NE 5th See R.HOV-43			✓ *	✓ *	✓
	Renton	R.IC-5 & R.AC-19	SR 900/ Park - Lake Washington Blvd to Edmonds. Additional capacity is not needed.					
	Bellevue	R.IC-6	Coal Creek Pkwy I-405 to Factoria Blvd.	✓	✓	✓	✓	✓
	Kirkland, Redmond	R.IC-8	NE 85th St-Kirkland Way to 124th			✓	✓	✓
	Kirkland	R.IC-9	NE 116th- 114th Ave NE to 124th Ave NE			✓	✓	✓
	Kirkland	R.IC-10	NE 124th- 113th Ave NE to 124th Ave NE			✓	✓	✓
	Bothell	R.IC-11 & R.HOV-41	SR 527-228th to SR 524			✓	✓	✓
	Renton	R.IC-12 & R.HOV-33	Port Quendall overpass at SE 44th. See R.HOV-33					
	Kirk,King Co	R.IC-14	New half diamond interchange to/from north at NE 132nd St				✓	✓
	Bothell	R.IC-21	New SR 405 Interchange at 240th Street SE(Bothell)				✓	✓
	Bothell	R.IC-24 & R-40	NE 160th Street-112th Ave to Juanita/Woodinville Wy See R-40			✓ *	✓ *	✓ *
	Bothell	R.IC-25	NE 195th Street-Ross Rd to North Creek Pkwy (additional capacity not needed)					
	Kirkland	R.IC-26 & R.PA-13	NE 132nd - 113th to 124th Ave NE				✓ *	✓ *
<b>12.</b>	<b>Collector Distributors (CD) Matched to fit I-405 Improvements</b>							
	Renton	R.CD-1	SR-167, SR-169, Sunset and SR 900/North Renton;					
	Bellevue	R.CD-2	Coal Creek, SR 90, SE 8th, NE 4th, NE 8th and SR 520;					
	Kirkland	R.CD-3	NE 70th and NE 85th;					
	Kirkland	R.CD-4	NE 116th and NE 132nd;					
	Bothell, King Co	R.CD-5	NE 160th, SR-522 and SR 527					
	<b>HOV (HOV)</b>							
<b>7.</b>	<b>Committed HOV Projects</b>							
	Bellevue	HOV-01	I-405 at NE 4th/6th/8th (Bellevue) / Construct new HOV direct access at NE 6th, Improve arterial capacity at NE 4th/8th interchanges	✓	✓	✓	✓	✓
	Bellevue	HOV-02	I-90 (Eastgate) / New I-90 HOV direct access connection to P&R	✓	✓	✓	✓	✓
	WSDOT	HOV-14	I-405 (I-5 Swamp Creek to SR 527)/Construct NB and SB HOV lanes total 6 lanes	✓	✓	✓	✓	✓
	KCDOT	HOV-15	E Lk Samm Pkwy (Iss-Fall City Rd to I-90 on ramp)/Widen to 4/5 lanes + HOV lanes. Outside of Study Area					
	ST	HOV-101	I-405 @ Lind/HOV direct access improvements.				✓	
	ST	HOV-102, R.HOV-58 & R.PA-1	Woodinville Arterial Enhancements/HOV arterial enhancements	✓	✓	✓	✓	✓
	Renton	R.HOV-32	Between Sunset and SR-900 /Park Ave interchange in Renton	✓	✓	✓	✓	✓
	Renton	R.HOV-33 & R.IC-12	NE 44th I/C - HOV Direct Access and Arterial Improvements(Assumes Port Quendall)	✓	✓	✓	✓	✓
	Kirkland	R.HOV-61	NE 85th				✓	
	Bothell	R.HOV-62	SR 522 Campus Access	✓	✓	✓	✓	✓
	Bothell	R.HOV-63	SR 527	✓	✓	✓	✓	✓
	Tukwila	R.HOV-64	Southcenter (In-Line Station). In line station at this location has been dropped.					
	ST	R.HOV-66	I-405 at NE 128th St/HOV Direct Access Improvements	✓	✓	✓	✓	✓

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Element #				No Action	HCT/TDM	Mixed Mode with HCT/Transit Emphasis	Mixed Mode	General Capacity
<b>7.</b>	<b>HOV Interchange Ramps (Direct Access)</b>							
	Tukwila	R.HOV-25	SR 5 I/C @ Tukwila Fwy to Fwy HOV ramps,			✓	✓	✓
	Renton	R.HOV-26	SR 167 I/C Fwy to Fwy HOV ramps,			✓	✓	✓
	Bellevue	R.HOV-27	SR 90 I/C Fwy to Fwy HOV ramps,			✓	✓	✓
	Bellevue	R.HOV-28	SR 520 Fwy to Fwy HOV ramps,			✓	✓	✓
	Bothell	R.HOV-29	SR 522 Fwy to Fwy HOV Ramps			✓	✓	✓
	Sno. Co.	R.HOV-30	SR 5 I/C @ Swamp Creek Fwy HOV ramps.			✓	✓	✓
	Newcastle	R.HOV-65	112th St SE (In-Line Station)			✓		
<b>6.</b>	<b>Arterial HOV</b>							
	Bellevue	R.HOV-36	Coal Creek Pkwy from I-405 to Forest Drive		✓	✓	✓	
	Bellevue	R.HOV-37	NE 8th Street from I-405 to 120th Ave NE		✓	✓	✓	
	Kirk, Redmond	R.HOV-38	NE 85th St from Kirkland Way to 148th Ave NE Vicinity		✓	✓	✓	
	Kirkland	R.HOV-39	NE 116th from 115th Ave NE to 124th Ave NE		✓	✓	✓	
	Kirkland	R.HOV-40	NE 124th from 113th Ave NE to 132 Ave NE		✓	✓	✓	
	Bothell	R.HOV-41 & R.IC-11	SR 527 From SE 228th St to SR 524		✓	✓ *	✓ *	
	Renton	R.HOV-43 & R.IC-4	SR 169 from SR 405 to Riverview Park Vicinity - HOV/Transit Preferential treatment.		✓	✓	✓	
	Renton	R.HOV-44	SW 27th St Corridor in Renton from Oaksdale Ave to SR 167		✓	✓	✓	
	Redmond	R.HOV-47	Avondale Rd from Novelty Hill Rd to Avondale Way/ Construct SB HOV lane		✓	✓	✓	
	Renton, King Co	R.HOV-48	SW 43 St from SR 167 to 140 Ave SE		✓	✓	✓	
	Renton	R.HOV-49	Logan Ave N/N 6 St from S 3 St to Park Dr, Transit Signal Priority		✓	✓	✓	
	Renton	R.HOV-51	Park Dr/Sunset Blvd from Garden Ave to Duvall Ave NE, Que Bypass'		✓	✓	✓	
	Kenmore	R.HOV-53 & R.PA-11	68 Ave NE (Simonds Rd to SR 522) - Construct NB HOV lane		✓	✓	✓	
	Redmond	R.HOV-55	Willows Rd (Redmond Wy to NE 124 St)		✓	✓	✓	
	Kirkland, Bellevue	R.HOV-56	Lake Washington Blvd (SR 520 to Yarrow Bay) - HOV lanes		✓	✓	✓	
	Kirkland	R.HOV-57	NE 68 St/NE 72 Pl (I-405 Vicinity) Que Bypass'		✓	✓	✓	
	Bothell, Woodin	R.HOV-58, HOV-102 & R.PA-1	SR 522 (I-405 to SR 527 - Bothell) WB HOV Que Bypass - See HOV-102					
	Renton, King Co	R.HOV-59	Benson Rd - I-405 to SE Carr Rd - No Project					
	Bellevue	R.HOV-60	Bellevue Way - I-90 to South Bellevue Park and Ride Vicinity		✓	✓	✓	
<b>23.</b>	<b>Freight (F)</b>							
	Renton	R.FR-10 & R.BI-1	Modify SR 167 Interchange for East to South Freight movements		✓ *	✓ *	✓ *	
	Various	R.FR-11	Improve truck flow with ITS		✓	✓	✓	
	Various	R.FR-23	Remote area for overnight freight parking and staging for early morning deliveries		✓	✓	✓	
	Various	R.FR-26	Full depth shoulders for truck usage on key freeways and arterials)		✓	✓	✓	
	Various	R.FR-27	Traveler Information System (TIS) on SR 167 for I-405 "options"		✓	✓	✓	
	Various	R.FR-28	TIS on I-5 for SR 18/I-90; and 164th to I-405; and South 200th to I-405		✓	✓	✓	
	Various	R.FR-29	Centralized fax/radio for real time congestion reporting for dispatchers and truck drivers. Leverage WSDOT video linkages (e.g., a "T-911" number).		✓	✓	✓	
	Various	R.FR-30	Hours of operation and service periods optimized—"JIT" redefined for applicable service sectors (e.g. restaurants)		✓	✓	✓	
	Various	R.FR-32	Light cargo delivery using Sound Transit service		✓	✓	✓	
<b>22.</b>	<b>Intelligent Transportation Systems (ITS)</b>							
	Various	ITS-1	Add Camera Coverage to decrease TMC blind spots		✓	✓	✓	✓
	Various	ITS-2	Complete Ramp Metering		✓	✓	✓	✓
	Various	ITS-4	Dual Lane Ramp Metering		✓	✓	✓	✓

\* Evaluated within another project

**APPENDIX B**
**I-405 Corridor Program EIS Alternatives Project Matrix**

				<b>Alternatives</b>				
	<b>Jurisdiction</b>	<b>ACTIONS</b>		<b>5</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Element #				No Action	HCT/TDM	Mixed Mode with HCT/Transit Emphasis	Mixed Mode	General Capacity
	Various	ITS-5	Increased Incident Response		✓	✓	✓	✓
	Various	ITS-6	Traffic adaptive control on arterials		✓	✓	✓	✓
	Various	ITS-7	TIS before all major decision points		✓	✓	✓	✓
	Various	ITS-8	WSDOT support of in-vehicle traffic information		✓	✓	✓	✓
	Various	ITS-9	Arterial camera coverage		✓	✓	✓	✓
<b>4.</b>	<b>High Capacity Transit (Physically Separated, Fixed Guideway HCT)</b>							
	Tuk. & Renton	T.HCT-1	HCT- SeaTac to Renton CBD		✓	✓		
	Renton	T.HCT-2	HCT-Renton CBD to NE 44th (Port Quendall)		✓	✓		
	Ren< New & Bel	T.HCT-3	HCT- NE 44th (Port Quendall) to Factoria		✓	✓		
	Bell & Issa	T.HCT-4	HCT - Factoria To Issaquah		✓	✓		
	Bellevue	T.HCT-5	HCT Factoria to Downtown Bellevue		✓	✓		
	Bell & Red	T.HCT-6	HCT - Bellevue to Redmond		✓	✓		
	Bell & Kirk	T.HCT-7	HCT- Bellevue to Totem Lake		✓	✓		
	Kirk & King Co	T.HCT-8	HCT - Totem Lake to Bothell		✓	✓		
	Various	T.HCT-9	HCT - Bothell to Lynnwood		✓	✓		
<b>4.</b>	<b>High Capacity Transit (Bus rapid transit [BRT] operating improved access HOV lanes on the existing freeway system)</b>							
	Tuk. & Renton	T.HCT-1	HCT- SeaTac to Renton CBD				✓	
	Renton	T.HCT-2	HCT-Renton CBD to NE 44th (Port Quendall)				✓	
	Ren< New & Bel	T.HCT-3	HCT- NE 44th (Port Quendall) to Factoria				✓	
	Bell & Issa	T.HCT-4	HCT - Factoria To Issaquah				✓	
	Bellevue	T.HCT-5	HCT Factoria to Downtown Bellevue				✓	
	Bell & Red	T.HCT-6	HCT - Bellevue to Redmond				✓	
	Bell & Kirk	T.HCT-7	HCT- Bellevue to Totem Lake				✓	
	Kirk & King Co	T.HCT-8	HCT - Totem Lake to Bothell				✓	
	Various	T.HCT-9	HCT - Bothell to Lynnwood				✓	
<b>4.</b>	<b>High Capacity Transit Stations</b>							
	Sea-Tac	HCT.TS-1	Sea-Tac (Outside of Study Area)					
	Tukwila	HCT.TS-2	Southcenter		✓	✓	✓	
	Tukwila & Renton	HCT.TS-3	Tukwila (Longacres)		✓	✓		
	Renton	HCT.TS-4	Downtown Renton		✓	✓	✓	
	Renton	HCT.TS-5	North Renton		✓	✓		
	Renton	HCT.TS-6	Port Quendall		✓	✓	✓	
	Bellevue	HCT.TS-7	Factoria		✓	✓	✓	
	Bellevue	HCT.TS-8	Bellevue Transit Center		✓	✓	✓	
	Bellevue	HCT.TS-9	Bellevue Library		✓	✓		
	Bell & Kirk	HCT.TS-10	SR 520/Northup Way		✓	✓	✓	
	Kirkland	HCT.TS-11	Downtown Kirkland (NE 85th Street)		✓	✓	✓	
	Kirkland	HCT.TS-12	Totem Lake		✓	✓	✓	
	Woodinville	HCT.TS-13	NE 145th Street		✓	✓		
	Woodinville	HCT.TS-14	Woodinville		✓	✓		
	Bothell	HCT.TS-15	NE 195th		✓	✓	✓	

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	<b>Jurisdiction</b>	<b>ACTIONS</b>		<b>5</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Element #				No Action	HCT/TDM	Mixed Mode with HCT/Transit Emphasis	Mixed Mode	General Capacity
	Bothell	HCT.TS-16	Canyon Park		✓	✓	✓	
	Sno County	HCT.TS-17	164th Street AW (AshWay)		✓	✓		
	Bellevue	HCT.TS-18	Eastgate		✓	✓	✓	
	King County	HCT.TS-19	Lakemont		✓	✓		
	Issaquah	HCT.TS-20	Issaquah 90Outside of Study area)					
	Bellevue	HCT.TS-21	132nd Avenue NE		✓	✓		
	Bellevue	HCT.TS-22	148th Avenue NE		✓	✓		
	Redmond	HCT.TS-23	Overlake (NE 40th Street)		✓	✓	✓	
	Redmond	HCT.TS-24	Redmond Town Center		✓	✓	✓	
	Redmond	HCT.TS-25	Bear Creek		✓	✓		
	Mercer Island	HCT.TS-26	Mercer Island		✓	✓	✓	
<b>New Transit Service (TS)</b>								
	Various	TS-0	Twenty percent more service than in the proposed 6-year plans for sound Transit, METRO and Community Transit	✓	✓	✓	✓	✓
	Various	TS-1	Fifty percent more service assumed in the current 6-year plans for Sound Transit, METRO and Community Transit					✓
<b>3.</b>	<b>Transit Service (TS)</b>							
	Various	TS-2	Twice the service in the proposed 6-year plans for Sound Transit, METRO and Community Transit		✓	✓	✓	
<b>8.</b>	<b>Park and Rides (PR)</b>							
	Renton	T.PR-3	Renton Highlands	✓	✓	✓	✓	✓
	Tukwila & Ren	T.PR-6	Tukwila Commuter Rail (Longacres)	✓	✓	✓	✓	✓
	K C	T.PR-8	SR 169 and 140th Place SE		✓	✓	✓	
	K C	T.PR-9	Petrovitsky Rd and 157th Ave SE		✓	✓	✓	
	K C	T.PR-10	140th Ave SE and SE 192nd		✓	✓	✓	
	K C	T.PR-11	SR 515 and SE 208th		✓	✓	✓	
	Kent & Renton	T.PR-12	SR 167 and SW 43rd		✓	✓	✓	
	Kent & Renton	T.PR-13	SR 167 and 84th Ave		✓	✓	✓	
	Redmond	T.PR-17	Willows Rd @ NE 100th		✓	✓	✓	
	Redmond	T.PR-18	SR 202 @ NE 100th		✓	✓	✓	
	Bell & Kirk	T.PR-20	South Kirkland	✓	✓	✓	✓	✓
	Redmond	T.PR-21	Overlake	✓	✓	✓	✓	✓
	Bellevue	T.PR-22	South Bellevue	✓	✓	✓	✓	✓
	Bellevue	T.PR-23	Newport (112th Ave. SE)	✓	✓	✓	✓	✓
	KC	T.PR-24	NE 160th/Brickyard Rd	✓	✓	✓	✓	✓
	Bothell	T.PR-25	Canyon Park (SR 405 and SR 527)	✓	✓	✓	✓	✓
	KC	T.PR-26	SR 202 @ NE 145th		✓	✓	✓	
	Tukwila	T.PR-30	Tukwila	✓	✓	✓	✓	✓
	Kirkland	T.PR-31	Houghton	✓	✓	✓	✓	✓
	Kirkland	T.PR-32	Kingsgate	✓	✓	✓	✓	✓
	Medina	T.PR-33	Evergreen Point	✓	✓	✓	✓	✓
	Bellevue	T.PR-34	Wilburton	✓	✓	✓	✓	✓
	King County	T.PR-35	Lakemont	✓	✓	✓	✓	✓
	Redmond	T.PR-36	Rendmond	✓	✓	✓	✓	✓
	Redmond	T.PR-37	Bear Creek	✓	✓	✓	✓	✓
	Bothell	T.PR-38	Bothell	✓	✓	✓	✓	✓

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	<b>Jurisdiction</b>	<b>ACTIONS</b>		<b>5</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Element #				No Action	HCT/TDM	Mixed Mode with HCT/Transit Emphasis	Mixed Mode	General Capacity
	Kenmore	T.PR-39	Northshore	✓	✓	✓	✓	✓
	Kenmore	T.PR-40	Kenmore	✓	✓	✓	✓	✓
	Woodinville	T.PR-41	Woodinville	✓	✓	✓	✓	✓
	Mercer Island	T.PR-42	Mercer Island	✓	✓	✓	✓	✓
	Bellevue	T.PR-43	Eastgate	✓	✓	✓	✓	✓
<b>9.</b>	<b>Transit Centers (TC)</b>							
	Renton	T.TC-6	Downtown Renton	✓	✓	✓	✓	✓
	Bellevue	T.TC-8	Downtown Bellevue	✓	✓	✓	✓	✓
	Redmond	T.TC-9	Overlake	✓	✓	✓	✓	✓
	Kirkland	T.TC-12	Downtown Kirkland	✓	✓	✓	✓	✓
	Kirkland	T.TC-14	Totem Lake	✓	✓	✓	✓	✓
<b>1.</b>	<b>TDM (TDM)</b>							
	Various	TDM-1	TDM Package		✓	✓	✓	✓
		TDM-2	Expanded TDM Package- Regional Congestion Pricing		✓			
	<b>Pedestrian and Bicycle Facilities (P&amp;B)</b>							
<b>21.</b>	<b>I-405 Crossings</b>							
	Bellevue	NM. CR-1	Lk Washington Blvd/112th Ave. SE - crossing I-405 from 106th Ave. SE to 112th Place SE - Add sidewalks		✓	✓	✓	✓
	Bothell	NM. CR-2	Fitzgerald Rd/27th Ave. - crossing I-405 from 228th St. SE to 240th St. SE - Add ped/bike facility		✓	✓	✓	✓
	King County	NM. CR-3	SR-524 (Filbert Road) - crossing I-405 from North Rd to Locust Way - Add sidewalk/paved shoulder		✓	✓	✓	✓
	Sno. County	NM. CR-4	Damson Road - crossing I-405 from 192nd St SW to Logan Rd - Add sidewalk/paved shoulder		✓	✓	✓	✓
	Renton	NM. CR-5	NE Park Drive - crossing I-405 from SR-900/Sunset Blvd to Lake Wash Blvd - Add sidewalk/paved shoulder		✓	✓	✓	✓
	Renton	NM. CR-6	Jackson SW/Longacres Dr SW - crossing I-405 from S. Longacres Way to Monster Rd SW - Add sidewalk/paved shoulder		✓	✓	✓	✓
	Bothell	NM. CR-7	Connection between Sammamish River Trail and North Creek Trail - between SR-522 and NE 195th St. - Add ped/bike overcrossing of I-405		✓	✓	✓	✓
	Bothell	NM. CR-8	SR-527 - crossing I-405 from 220th St SE to 228th St SE - ped/bike facility		✓	✓	✓	✓
<b>21.</b>	<b>Pedestrian/Bicycle Connections</b>							
	Bellevue,Kirkland	NM.P&B-2	BNSF Right of Way - SE 8th to Totem Lake - Add ped/bike facility.		✓	✓	✓	
	Bellevue	NM.P&B-4	Lk Washington Blvd - SR 405 to SE 60th - Add ped/bike facilities		✓	✓	✓	
	Bothell	NM.P&B-5	North Creek Trail Link - 240th to 232nd - Add ped/bike trail.		✓	✓	✓	
	Bel,Nwcas,Ren	NM.P&B-6	Lk Washington Blvd/112th - SE 60th to May Creek I/C - Add ped/bike facility		✓	✓	✓	
	Renton	NM.P&B-14	Cedar River Trail S. Extension - I-405 to Burnett Ave - Add ped/bike facilities		✓	✓	✓	
	Renton	NM.P&B-15	Cedar River Trail/Lake Washington Blvd Connector - Cedar River Trail to Lk Wash Blvd Loop - Add ped/bike facilities		✓	✓	✓	
	Renton	NM.P&B-16	Cedar-Duwamish Trail Connection - I-405 to Interurban Ave. S. - Add ped/bike facilities		✓	✓	✓	
	Renton	NM.P&B-17	I-405/SR-167 trail connection - Lind Ave. SE to Talbot Rd S. - Add trail connection		✓	✓	✓	
	Renton/Tukwila	NM.P&B-18	I-405/I-5 - via or around I-405/I-5 interchange - Add ped/bike facilities		✓	✓	✓	✓
	Tukwila	NM.P&B-19	SR-181/W. Valley Hwy - crossing I-405 from Strander Blvd to Fort Dent Way - Add bike lanes		✓	✓	✓	✓
<b>17.</b>	<b>Arterial Committed Projects</b>		(Note: ID numbers are same as ETP ID's)					
	Bothell, Snohomish C	R.AC-21	120th NE/39th SE - NE 95th to Maltby Rd - 4/5 lanes including new connection	✓	✓	✓	✓	✓
	Bellevue	R-08	NE 29th PI (148th Ave NE to NE 24th St)/Construct new 2-lane road	✓	✓	✓	✓	✓

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	<b>Jurisdiction</b>	<b>ACTIONS</b>		<b>5</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
Element #				No Action	HCT/TDM	Mixed Mode with HCT/Transit Emphasis	Mixed Mode	General Capacity
	Snohomish Co.	R-10	SR 524 (24 St SW to SR 527)--- Widen to 4/5 lanes including sidewalks, bike lanes	✓	✓	✓	✓	✓
	Bothell	R-13	Beardslee Blvd (Main St to I-405)Widen to 3 lanes+CGS (Project does not add capacity)					
	Joint	R-17 & R-17(10)	I-90/SR 900 Interchange and SR 900 improvements--- Interchange reconfiguration. Project is outside of the Study Area					
	Issaquah	R-18	Issaquah bypass (Issaquah-Hobart Rd to I-90)-- Construct new 4/5 lanes with separated ped/bike trail. Project is outside of the Study Area.					
	Kirkland	R-21	NE 120 St (Slater Ave to 124 Ave NE)--- Construct new 3-lane roadway with ped/bike facilities	✓				
	Redmond/ WSDOT	R-25	SR 202 Corridor Improvements(East Lake Sammamish Pkwy to Sahalee Way)--- Widen to 3/5 lanes; intersection improvements with bike/ped facilities	✓	✓	✓	✓	✓
	Redmond	R-26	NE 90 St (Willows Rd to SR 202)--- Construct new 4/5 lanes + bike facilities	✓	✓	✓	✓	✓
	Redmond	R-28	West Lake Sammamish Parkway (Leary Way to Bel-Red Rd)--- Widen to 4/5 lanes + CGS, bike lanes	✓	✓	✓	✓	✓
	Renton	R-36	Oakesdale Ave SW (SW 31st to SW 16th)--- Construct new 5 lane roadway with CGS	✓	✓	✓	✓	✓
	WSDOT	R-38	SR 522 (SR 9 to SR 2)--- Widen to 4 lanes					
	KCDOT	R-39 & R.AC-2	140 Ave SE (SR 169 to SE 208 St)--- Widen to 5 lanes SR 169 to SE 196 St, widen for turn channels on SE 196. Combines 2 King County CIP projects. A major North-South arterial which serves the Soos Creek Plateau and Fairwood.	✓	✓	✓	✓	✓
	KCDOT	R-40 & R.IC-24	Juanita-Woodinville Way (NE 145 St to 112th Ave NE) Widen to 5 lanes + CGS, walkway/pathway	✓	✓	✓	✓	✓
	KCDOT	R-41	East Lake Sammamish Pkwy (Issaquah-Fall City Rd to SE 56 St)--- Widen 4/5 lanes including bike facilities. Construct CGS; interconnect traffic signals. Project is outside of the Study Area.					
	Issaquah	R-42	Sammamish Plateau Access Road (I-90 to Iss.-Pine Lake Rd)-- Prepare EIS, construct new 5-lane arterial w/ CGS, bike lanes. Project is outside of the Study Area.					
	Sammamish	R-44	228 Ave SE (SE 24th to NE 8 St)--- Widen to 4/5 lanes + CGS, bike lanes. Planned in 2 phases. Project is outside of the Study Area.					
	KCDOT	R-45	Issaquah-Fall City Rd (Issaquah-Pine Lake Rd to Klahanie Dr) - Phase II & III--- Widen to 4/5 lanes + CGS, bike lanes. Project is outside of the Study Area.					
	KCDOT	R-47	NE 124 St (Willows Rd to SR 202)--- Widen to 4/5 lanes + CGS, bike facilities; traffic signal.	✓	✓	✓	✓	✓
	KCDOT	R-48	Avondale Rd (Tolt Pipeline to Woodinville-Duvall Rd)--- Widen to 3 lanes + walkway/pathway (Project does not add capacity)					
	Woodinville	R-51	Woodinville-Snohomish Rd/140 Ave NE (NE 175 St to SR 522)--- Widen to 4/5 lanes + CGS, bike lanes	✓	✓	✓	✓	✓
	KCDOT	R-52	Woodinville-Duvall Rd (NE 171st St to Avondale Rd)--- Widen to 5 lanes + shoulders (without widening towards Woodinville the added capacity can't be used)					
	Bellevue	R-101	150th Ave SE---Widen to 7 lanes from SE 36th to SE 38th; add turn lanes	✓	✓	✓	✓	✓
	Redmond	R-111 & R.AC-15	Willows Rd Corridor Improvements-- Channelization of Willows Rd/Redmond Way intersection and widening of Willows Rd from NE 116th to NE 124th	✓	✓	✓	✓	✓
	Snohomish Co.	R-117	39th Ave SE Realignment at SR 524 and York Rd--- Construct 4-way intersection to replace 2 offset intersections	✓	✓	✓	✓	✓
<b>17.</b>	<b>Planned Arterial Projects</b>							
	Sound Transit	R.PA-1, HOV-102 & R.HOV-58	SR 522 (Woodinville to Bothell)--- HOV enhancements (ETP 246) See HOV-102					
	Bellevue	R.PA-2	148 Ave SE (SE 24 St to SE 28 St) New SB lane from SE 24 St to the WB I-90 on-ramp (ETP 203)			✓	✓	✓
	Bothell	R.PA-3	SR 522 Multimodal Corridor Project--- Widen SR-522 mostly within existing ROW to provide transit lanes, safety improvements, consolidated driveways & left turn lanes; and sidewalks. (ETP R-107)			✓	✓	✓
	Bothell	R.PA-4	SR 524 (SR 527 to Bothell City Limit)--- Widen to 5 lanes + CGS, bike facilities (class III) (ETP R-11)			✓	✓	✓
	KCDOT	R.PA-5	SE 212 Way/SE 208 St (SR 167 to Benson Rd/SR 515)--- Widen to 6 lanes + bike facilities, Transit/HOV preferential treatment, turn channels. (ETP R-46)			✓	✓	✓
	KCDOT	R.PA-6	Petrovitsky Rd (143 Ave SE to 151 Ave SE) --- Widen to 5 lanes + CGS, bike lanes, traffic signal, interconnect (ETP 265). Project has already been constructed.					
	KCDOT	R.PA-7	Bear Creek Arterial (NE 80 St to Novelty Hill Rd)--- Corridor study and construction of new 3 lane arterial (ETP 141). Project is outside the study area					
	KCDOT	R.PA-8	NE 124/128 St (SR 202 to Avondale Rd)--- Widen to 4/5 lanes including bike & equestrian facilities (ETP 164)			✓	✓	✓
	KCDOT	R.PA-9	SE 208 St (116 Ave SE to 132 Ave SE)--- Widen to 4/5 lanes + CGS, bike lanes, traffic signal (ETP 263). Project has already been constructed.					

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Element #				No Action	HCT/TDM	Mixed Mode with HCT/Transit Emphasis	Mixed Mode	General Capacity
	KCDOT	R.PA-10	NE 132 St Extension (132 Ave NE to Willows Rd Ext.)--- Construct new 3 lane arterial with CGS, bike lanes (ETP 61)			✓	✓	✓
	Kenmore/KCDOT	R.PA-11 & R.HOV-53	68 Ave NE (Simonds Rd to SR 522)--- Construct NB HOV lane total of 5/6 lanes (ETP 22)			✓ *	✓ *	✓
	Kirkland	R.PA-12	124 Ave NE (NE 85 St to Slater Rd NE)--- Widen to 3 lanes (s. of NE 116th St, 5 lanes n. of NE 116th St with ped/bike facilities (ETP R-23)			✓	✓	✓
	Kirkland	R.PA-13 & R.IC-26	NE 132 St (100 Ave NE to 116 Way NE)--- Widen to 3 lanes + CGS, Bike lane (ETP R-124)			✓	✓	✓
	Kirkland	R.PA-14	NE 100 St (117 Ave NE to Slater Ave) --- Construct bike/pedestrian/emergency Vehicle overpass across I-405 (ETP 309)			✓	✓	✓
	Newcastle	R.PA-15	Coal Creek Pkwy (SE 72 St to Renton City Limits)--- Widen to 4/5 lanes + CGS, bike lanes, traffic signals (ETP R-24)			✓	✓	✓
	Redmond	R.PA-16	Redmond 148th Ave NE Corridor - 3 projects--- Turn lane and channelization improvements along corridor – BROTS;			✓	✓	✓
	Redmond	R.PA-17	Bear Creek Pkwy--- Construct new 162nd Ave NE arterial and new 72nd St arterial w/ bike/ped and CSG; widen Bear Creek Pkwy (ETP R-110)			✓	✓	✓
	Redmond	R.PA-18	Union Hill Rd (Avondale Rd to 196 Ave NE)--- Widen to 4/5 lanes with bike facilities (ETP R-27)			✓	✓	✓
	Renton	R.PA-19	Duvall Ave NE (NE 4 St to NE 25 Court -City Limits)--- Widen to 5 lanes + CGS, bikeway (ETP R-31)			✓	✓	✓
	Renton	R.PA-20	Oakesdale Ave SW (Monster Rd to SR 900) Replace Monster Rd Bridge; widen to 4/5 lanes +Bike Lanes + CGS (ETP R-35)			✓	✓	✓
	Renton	R.PA-21	Rainier Ave / Grady Way (intersection)-- Grade separation			✓	✓	✓
	Renton	R.PA-22	SW Grady Way (SR 167 to SR 515)--- Rechannelize and modify signals for a continuous eastbound lane (ETP R-37)			✓	✓	✓
	Renton	R.PA-23	SR 167 at East Valley Road--- New southbound off-ramp and signalization at East Valley Road (ETP 255)			✓	✓	✓
	Renton/ KCDOT	R.PA-24	Soos Creek Regional Links--- Placeholder for Trans-Valley Study (ETP R-115)			✓	✓	✓
	Woodinville	R.PA-25 & R.AC-30	SR 522 Interchange Package(SR 522/SR 202 &SR522/195th St)--- Access improvements and new freeway ramps (ETP R-53) (See R.AC-30)			✓	✓	✓
	Woodinville	R.PA-26	SR202 Corridor Package (SR202/148th Ave & SR202/127th Place)--- Intersection improvements (ETP R-54)			✓	✓	✓
	WSDOT	R.PA-27	SR 520/SR 202 Interchange --- Complete interchange by constructing a new ramp and thru lane on 202 to SR 520 (ETP R-29)			✓	✓	✓
	WSDOT	R.PA-28 & R.AC-17	SR 202 / 140 Place NE (NE 124 St to NE 175 St)--- Widen 4/5 lanes (ETP R-43) (See R.AC-17, 18)			✓	✓	✓
	WSDOT	R.PA-29	SR 202 (Sahalee Way to Bear Creek-Sammamish Arterial)-- Widen to 4/5 lanes (ETP 152). Project is outside the Study Area.					

## **APPENDIX C**

### Communications and Coordination



***No specific correspondence was received. However, general coordination is presented in Section 3.3 of this report.***

**APPENDIX D**  
No Action Alternative Impact Matrix



Appendix D. Number of habitats and linear distance (in feet) of each habitat potentially impacted by the No Action Alternative

<b>"No Action"</b>									
Element#	Element	Number of Habitats	bald eagle Territory	urban natural open space	Riparian Area	Number of bald eagle Sites	Urban Areas	Suburban Areas	Rural Areas
<b>10.</b>	<b>Committed Freeway Projects</b>								
	<b>Total =</b>	1	0 Lft.	0 Lft.	0 Lft.	0	1,056 Lft.	0 Lft.	0 Lft.
<b>19.</b>	<b>Arterial Interchange Improvements (Matched to fit I-405 Improvements)</b>								
	<b>Total =</b>	1	0 Lft.	400 Lft.	0 Lft.	0	0 Lft.	2,640 Lft.	0 Lft.
<b>7.</b>	<b>Committed HOV Projects</b>								
	<b>Total =</b>	16	0 Lft.	800 Lft.	0 Lft.	0	51,744 Lft.	68,640 Lft.	0 Lft.
<b>17.</b>	<b>Arterial Committed Projects</b>								
	<b>Total =</b>	24	3,600 Lft.	11,000 Lft.	0 Lft.	1	79,728 Lft.	170,016 Lft.	34,320 Lft.
<b>Alternative Grand Total =</b>		<b>42</b>	<b>3,600 Lft.</b>	<b>12,200 Lft.</b>	<b>0 Lft.</b>	<b>1</b>	<b>132,528 Lft.</b>	<b>241,296 Lft.</b>	<b>34,320 Lft.</b>





**APPENDIX E**  
Alternative 1 Impact Matrix



Appendix E. Number of habitats and linear distance (in feet) of each habitat potentially impacted by Alternative One

<b>Alternative 1 - "HCT/TDM"</b>									
Element #	Element	Number of Habitats	bald eagle Territory	urban natural open space	Riparian Area	Number of bald eagle Sites	Urban Areas	Suburban Areas	Rural Areas
<b>10.</b>	<b>Basic I-405 Improvement Projects</b>								
	<b>Total =</b>	19	12,800 Lft.	800 Lft.	3,440 Lft.	0	48,576 Lft.	71,808 Lft.	0 Lft.
<b>6.</b>	<b>Arterial HOV</b>								
	<b>Total =</b>	19	6,700 Lft.	10,200 Lft.	0 Lft.	1	41,008 Lft.	45,936 Lft.	1,232 Lft.
<b>23.</b>	<b>Freight (F)</b>								
	<b>Total =</b>	1	0 Lft.	0 Lft.	0 Lft.	0	0 Lft.	0 Lft.	0 Lft.
<b>4.</b>	<b>High Capacity Transit</b>								
	<b>Total =</b>	30	11,600 Lft.	15,400 Lft.	6,600 Lft.	0	69,074 Lft.	103,175 Lft.	0 Lft.
<b>21.</b>	<b>I-405 Crossings</b>								
	<b>Total =</b>	7	2,000 Lft.	2,100 Lft.	0 Lft.	0	17,635 Lft.	10,296 Lft.	0 Lft.
<b>21.</b>	<b>Pedestrian/Bicycle Connections</b>								
	<b>Total =</b>	9	3,400 Lft.	2,400 Lft.	2,300 Lft.	0	63,730 Lft.	6,407 Lft.	0 Lft.
<b>Alternative Grand Total =</b>		<b>85</b>	<b>36,500 Lft.</b>	<b>30,900 Lft.</b>	<b>12,340 Lft.</b>	<b>1</b>	<b>240,023 Lft.</b>	<b>237,622 Lft.</b>	<b>1,232 Lft.</b>



**APPENDIX F**  
Alternative 2 Impact Matrix



**Appendix F. Number of habitats and linear distance (in feet) of each habitat potentially impacted by Alternative Two**

<b>Alternative 2 - "Mixed Mode with Transit Emphasis"</b>									
Element #	Element	Number of Habitats	bald eagle Territory	urban natural open space	Riparian Area	Number of bald eagle Sites	Urban Areas	Suburban Areas	Rural Areas
<b>10.</b>	<b>Basic I-405 Improvement Projects</b>								
	<b>Total =</b>	20	12,800 Lft.	800 Lft.	3,440 Lft.	0	48,576 Lft.	71,808 Lft.	0 Lft.
<b>14.</b>	<b>Widen SR 167 by one lane each direction to study area boundary</b>								
	<b>Total =</b>	3	0 Lft.	0 Lft.	0 Lft.	0	81,512 Lft.	0 Lft.	0 Lft.
<b>16.</b>	<b>Connecting Freeway Capacity (Matched to fit I-405 Improvements)</b>								
	<b>Total =</b>	3	3,800 Lft.	0 Lft.	0 Lft.	0	37,488 Lft.	159,456 Lft.	42,240 Lft.
<b>10A.</b>	<b>One Additional GP or Auxiliary lane in each direction</b>								
	<b>Total =</b>	22	12,300 Lft.	4,860 Lft.	3,020 Lft.	0	115,104 Lft.	204,864 Lft.	0 Lft.
<b>19.</b>	<b>Arterial Interchange improvements (Matched to fit I-405 improvements)</b>								
	<b>Total =</b>	6	0 Lft.	3,200 Lft.	320 Lft.	0	0 Lft.	44,939 Lft.	0 Lft.
<b>12.</b>	<b>Collector Distributors (CD) Matched to fit I-405 improvements</b>								
	<b>Total =</b>	3	0 Lft.	0 Lft.	0 Lft.	0	0 Lft.	0 Lft.	0 Lft.
<b>7.</b>	<b>HOV Interchange Ramps (Direct Access)</b>								
	<b>Total =</b>	2	160 Lft.	0 Lft.	0 Lft.	0	53,328 Lft.	98,736 Lft.	0 Lft.
<b>6.</b>	<b>Arterial HOV</b>								
	<b>Total =</b>	19	6,700 Lft.	10,200 Lft.	0 Lft.	1	41,008 Lft.	45,936 Lft.	1,232 Lft.
<b>23.</b>	<b>Freight (F)</b>								
	<b>Total =</b>	1	0 Lft.	0 Lft.	0 Lft.	0	0 Lft.	0 Lft.	0 Lft.
<b>4.</b>	<b>High Capacity Transit</b>								
	<b>Total =</b>	30	11,600 Lft.	15,400 Lft.	6,600 Lft.	0	69,074 Lft.	103,175 Lft.	0 Lft.
<b>21.</b>	<b>I-405 Crossings</b>								
	<b>Total =</b>	7	2,000 Lft.	2,100 Lft.	0 Lft.	0	17,635 Lft.	10,296 Lft.	0 Lft.
<b>21.</b>	<b>Pedestrian/Bicycle Connections</b>								
	<b>Total =</b>	9	3,400 Lft.	2,400 Lft.	2,300 Lft.	0	63,730 Lft.	6,407 Lft.	0 Lft.
<b>17.</b>	<b>Planned Arterial Projects</b>								
	<b>Total =</b>	29	1,500 Lft.	3,100 Lft.	1,320 Lft.	0	38,016 Lft.	144,672 Lft.	1,056 Lft.
<b>Alternative Grand Total =</b>		<b>154</b>	<b>54,260 Lft.</b>	<b>42,060 Lft.</b>	<b>17,000 Lft.</b>	<b>1</b>	<b>565,271 Lft.</b>	<b>890,289 Lft.</b>	<b>2,288 Lft.</b>





**APPENDIX G**  
Alternative 3 Impact Matrix



**Appendix G. Number of habitats and linear distance (in feet) of each habitat potentially impacted by Alternative 3**

<b>Alternative 3 - "Mixed Mode"</b>									
Element #	Element	Number of Habitats	bald eagle Territory	urban natural open space	Riparian Area	Number of bald eagle Sites	Urban Areas	Suburban Areas	Rural Areas
<b>10.</b>	<b>Basic I-405 Improvement Projects</b>								
	<b>Total =</b>	20	12,000 Lft.	800 Lft.	3,440 Lft.	0	48,576 Lft.	71,808 Lft.	0 Lft.
<b>11.</b>	<b>Two Additional GP lanes in each direction</b>								
	<b>Total =</b>	21	12,300 Lft.	4,300 Lft.	3,020 Lft.	0	115,104 Lft.	166,848 Lft.	0 Lft.
<b>14.</b>	<b>Widen SR 167 by one lane each direction to study area boundary</b>								
	<b>Total =</b>	2	0 Lft.	0 Lft.	0 Lft.	0	67,584 Lft.	0 Lft.	0 Lft.
<b>14A.</b>	<b>SR 167 / I-405 Interchange Improvements</b>								
	<b>Total =</b>	1	0 Lft.	0 Lft.	0 Lft.	0	13,728 Lft.	0 Lft.	0 Lft.
<b>16.</b>	<b>Connecting Freeway Capacity (Matched to fit I-405 Improvements)</b>								
	<b>Total =</b>	3	3,800 Lft.	0 Lft.	0 Lft.	0	37,488 Lft.	159,456 Lft.	0 Lft.
<b>18.</b>	<b>Arterial Capacity (AC) Actions</b>								
	<b>Total =</b>	5	0 Lft.	2,500 Lft.	0 Lft.	0	10,507 Lft.	59,136 Lft.	11,616 Lft.
<b>19.</b>	<b>Arterial Interchange improvements (Matched to fit I-405 improvements)</b>								
	<b>Total =</b>	6	0 Lft.	3200 Lft.	320 Lft.	0	0 Lft.	60,779 Lft.	0 Lft.
<b>12.</b>	<b>Collector Distributors (CD) Matched to fit I-405 improvements</b>								
	<b>Total =</b>	7	0 Lft.	1000 Lft.	0 Lft.	0	0 Lft.	0 Lft.	0 Lft.
<b>7.</b>	<b>HOV Interchange Ramps (Direct Access)</b>								
	<b>Total =</b>	2	160 Lft.	0 Lft.	0 Lft.	0	53,328 Lft.	98,736 Lft.	0 Lft.
<b>6.</b>	<b>Arterial HOV</b>								
	<b>Total =</b>	19	6,700 Lft.	10,200 Lft.	0 Lft.	1	41,008 Lft.	45,936 Lft.	1,232 Lft.
<b>23.</b>	<b>Freight (F)</b>								
	<b>Total =</b>	1	0 Lft.	0 Lft.	0 Lft.	0	0 Lft.	0 Lft.	0 Lft.
<b>4.</b>	<b>High Capacity Transit</b>								
	<b>Total =</b>	30	11,600 Lft.	15,400 Lft.	6,600 Lft.	0	69,074 Lft.	103,175 Lft.	0 Lft.
<b>21.</b>	<b>I-405 Crossings</b>								
	<b>Total =</b>	7	2,000 Lft.	2,100 Lft.	0 Lft.	0	17,635 Lft.	10,296 Lft.	0 Lft.
<b>21.</b>	<b>Pedestrian/Bicycle Connections</b>								
	<b>Total =</b>	9	3,400 Lft.	2,400 Lft.	2,300 Lft.	0	63,730 Lft.	6,407 Lft.	0 Lft.
<b>17.</b>	<b>Planned Arterial Projects</b>								
	<b>Total =</b>	29	1,500 Lft.	3,100 Lft.	1,320 Lft.	0	38,016 Lft.	144,672 Lft.	1,056 Lft.
<b>Alternative Grand Total =</b>		<b>162</b>	<b>54,260 Lft.</b>	<b>45,000 Lft.</b>	<b>17,000 Lft.</b>	<b>1</b>	<b>575,778 Lft.</b>	<b>927,249 Lft.</b>	<b>13,904 Lft.</b>



**APPENDIX H**  
Alternative 4 Impact Matrix



## Appendix H. Number of habitats and linear distance (in feet) of each habitat potentially impacted by Alternative Four

<b>Alternative 4 - "General Capacity"</b>									
Element #	Element	Number of Habitats	bald eagle Territory	urban natural open space	Riparian Area	Number of bald eagle Sites	Urban Areas	Suburban Areas	Rural Areas
<b>10.</b>	<b>Basic I-405 Improvement Projects</b>								
	<b>Total =</b>	20	12,800 Lft.	800 Lft.	3440 Lft.	0	48,576 Lft.	71,808 Lft.	0 Lft.
<b>13.</b>	<b>Express Lanes – Two lanes each direction between major interchanges</b>								
	<b>Total =</b>	23	12,300 Lft.	4,300 Lft.	3020 Lft.	0	12,4608 Lft.	166,848 Lft.	0 Lft.
<b>13.</b>	<b>Express Lanes – Access Locations</b>								
	<b>Total =</b>	4	0 Lft.	720 Lft.	0 Lft.	0	32,208 Lft.	133,056 Lft.	0 Lft.
<b>14.</b>	<b>Widen SR 167 by one lane each direction to study area boundary</b>								
	<b>Total =</b>	2	0 Lft.	0 Lft.	0 Lft.	0	67,584 Lft.	0 Lft.	0 Lft.
<b>14A.</b>	<b>Widen SR 167 by one lane each direction to study area boundary</b>								
	<b>Total =</b>	1	0 Lft.	0 Lft.	0 Lft.	0	13,728 Lft.	0 Lft.	0 Lft.
<b>16.</b>	<b>Connecting Freeway Capacity (Matched to fit I-405 Improvements)</b>								
	<b>Total =</b>	8	3,800 Lft.	0 Lft.	0 Lft.	0	37,488 Lft.	159,456 Lft.	0 Lft.
<b>10A.</b>	<b>One Additional GP or Auxiliary lane in each direction</b>								
	<b>Total =</b>	21	12,300 Lft.	4,300 Lft.	3020 Lft.	0	115,104 Lft.	166,848 Lft.	0 Lft.
<b>18.</b>	<b>Arterial Capacity (AC) Actions</b>								
	<b>Total =</b>	13	0 Lft.	4,700 Lft.	0 Lft.	0	18,480 Lft.	164,124 Lft.	37,752 Lft.
<b>19.</b>	<b>Arterial Interchange improvements (Matched to fit I-405 improvements)</b>								
	<b>Total =</b>	6	0 Lft.	3,200 Lft.	320 Lft.	0	0 Lft.	60,779 Lft.	0 Lft.
<b>12.</b>	<b>Collector Distributors (CD) Matched to fit I-405 improvements</b>								
	<b>Total =</b>	7	0 Lft.	1,000 Lft.	0 Lft.	0	0 Lft.	0 Lft.	0 Lft.
<b>7.</b>	<b>HOV Interchange Ramps (Direct Access)</b>								
	<b>Total =</b>	2	160 Lft.	0 Lft.	0 Lft.	0	53,328 Lft.	98,736 Lft.	0 Lft.
<b>21.</b>	<b>I-405 Crossings</b>								
	<b>Total =</b>	7	2,000 Lft.	2100 Lft.	0 Lft.	0	17,635 Lft.	10,296 Lft.	0 Lft.
<b>21.</b>	<b>Pedestrian/Bicycle Connections</b>								
	<b>Total =</b>	0	0 Lft.	0 Lft.	0 Lft.	0	10,296 Lft.	0 Lft.	0 Lft.
<b>17.</b>	<b>Planned Arterial Projects</b>								
	<b>Total =</b>	29	1,500 Lft.	3,100 Lft.	1,320 Lft.	0	38,016 Lft.	144,672 Lft.	1,056 Lft.
<b>Alternative Grand Total =</b>		<b>143</b>	<b>44,860 Lft.</b>	<b>24,220 Lft.</b>	<b>11,120 Lft.</b>	<b>0</b>	<b>577,051 Lft.</b>	<b>1,176,623 Lft.</b>	<b>38,808 Lft.</b>





**APPENDIX I**  
List of Wildlife Species  
Common to the Project Study Area



## Appendix I: List of Wildlife Species Common to the Project Study Area

Common Name	Scientific Name	Habitat					
		Herbaceous	Shrub	Deciduous	Coniferous	Mixed C/D	Riparian
BIRDS							
Great blue heron	<i>Ardea herodias</i>	X					X
Canada goose	<i>Branta canadensis</i>	X					
Mallard	<i>Anas platyrhynchos</i>						X
Red-tailed hawk	<i>Buteo jamaicensis</i>	X		X	X	X	
Sharp-shinned hawk	<i>Accipiter striatus</i>			X	X	X	
Cooper's hawk	<i>Accipiter cooperii</i>			X	X	X	
Bald eagle	<i>Haliaeetus leucocephalus</i>			X	X	X	X
American kestrel	<i>Falco sparverius</i>	X		X		X	
California quail	<i>Callipepla californica</i>	X	X				
Ring-necked pheasant	<i>Phasianus colchicus</i>	X	X				
Killdeer	<i>Charadrius vociferus</i>	X					
California gull	<i>Larus californicus</i>	X					
Ring-billed gull	<i>Larus delawarensis</i>	X					
Rock dove	<i>Columba livia</i>	X					
Western screech owl	<i>Otus kennicottii</i>			X	X	X	X
Great horned owl	<i>Bubo virginianus</i>			X	X	X	X
Northern pygmy owl	<i>Glaucidium gnoma</i>				X	X	
Barn owl	<i>Tyto alba</i>	X		X		X	
Rufous hummingbird	<i>Selasphorus rufus</i>		X				X
Anna's hummingbird	<i>Calypte anna</i>			X		X	
Belted kingfisher	<i>Ceryle alcyon</i>						X
Northern flicker	<i>Colaptes auratus</i>		X	X	X	X	X
Pileated woodpecker	<i>Dryocopus pileatus</i>			X	X	X	
Red-breasted sapsucker	<i>Sphyrapicus ruber</i>		X	X	X	X	
Downy woodpecker	<i>Picoides pubescens</i>			X	X	X	X
Hairy woodpecker	<i>Picoides villosus</i>			X	X	X	X
Western wood-pewee	<i>Contopus sordidulus</i>			X	X	X	X
Pacific-slope flycatcher	<i>Empidonax difficilis</i>			X	X	X	X
Tree swallow	<i>Tachycineta bicolor</i>	X	X		X	X	X
Violet-green swallow	<i>Tachycineta thalassina</i>	X	X	X	X	X	X
Barn swallow	<i>Hirundo rustica</i>	X	X				
Steller's jay	<i>Cyanocitta stelleri</i>		X	X	X	X	
American crow	<i>Corvus brachyrhynchos</i>	X	X	X	X	X	X
Black-capped chickadee	<i>Parus atricapillus</i>		X	X	X	X	X
Chestnut-backed chickadee	<i>Parus rufescens</i>		X	X	X	X	X
Common bushtit	<i>Psaltirparus minimus</i>		X	X		X	X
Red-breasted nuthatch	<i>Sitta canadensis</i>			X	X	X	X
Brown creeper	<i>Certhia americana</i>			X	X	X	X
Bewick's wren	<i>Thryomanes bewickii</i>		X	X	X	X	X
Winter wren	<i>Troglodytes troglodytes</i>		X	X	X	X	X
American robin	<i>Turdus migratorius</i>	X	X	X	X	X	X
Varied thrush	<i>Ixoreus naevius</i>		X	X	X	X	X
Swainson's thrush	<i>Catharus ustulatus</i>		X	X	X	X	X
Golden-crowned kinglet	<i>Regulus satrapa</i>			X	X	X	X
Ruby-crowned kinglet	<i>Regulus calendula</i>			X	X	X	X
Cedar waxwing	<i>Bombycilla cedrorum</i>		X	X	X	X	X
European starling	<i>Sturnus vulgaris</i>	X	X	X	X	X	X
Hutton's vireo	<i>Vireo huttoni</i>		X	X	X	X	X

Common Name	Scientific Name	Habitat					
		Herbaceous	Shrub	Deciduous	Coniferous	Mixed C/D	Riparian
Warbling vireo	<i>Vireo gilvus</i>		X	X	X	X	X
Orange-crowned warbler	<i>Vermivora celata</i>		X	X			X
Yellow-rumped warbler	<i>Dendroica coronata</i>		X	X	X	X	X
Yellow warbler	<i>Dendroica petechia</i>		X	X		X	X
Townsend's warbler	<i>Dendroica townsendi</i>				X	X	X
Black-throated gray warbler	<i>Dendroica nigrescens</i>			X	X	X	X
Common yellowthroat	<i>Geothlypis trichas</i>	X	X				X
Wilson's warbler	<i>Wilsonia pusilla</i>		X	X		X	X
House sparrow	<i>Passer domesticus</i>	X	X				
Red-winged blackbird	<i>Agelaius phoeniceus</i>		X				
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	X					
Bullock's oriole	<i>Icterus galbula bullockii</i>		X	X		X	X
Brown-headed cowbird	<i>Molothrus ater</i>	X	X	X	X	X	X
Western tanager	<i>Piranga ludoviciana</i>		X	X	X	X	X
Black-headed grosbeak	<i>Pheucticus melanocephalus</i>			X	X	X	X
Evening grosbeak	<i>Hesperiphona vespertina</i>		X	X	X	X	X
Purple finch	<i>Carpodacus purpureus</i>			X	X	X	X
House finch	<i>Carpodacus mexicanus</i>		X				
Pine siskin	<i>Carduelis pinus</i>			X	X	X	X
American goldfinch	<i>Carduelis tristis</i>	X	X				
Red crossbill	<i>Loxia curvirostra</i>				X	X	X
Rufous-sided towhee	<i>Pipilo erythrophthalmus</i>		X	X	X	X	X
Dark-eyed junco	<i>Junco hyemalis</i>	X	X	X	X	X	X
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	X	X				
Golden-crowned sparrow	<i>Zonotrichia atricapilla</i>						X
Chipping sparrow	<i>Spizella passerina</i>	X	X	X			
Savannah sparrow	<i>Passerculus sandwichensis</i>	X					
Fox sparrow	<i>Passerella iliaca</i>		X	X	X	X	X
Song sparrow	<i>Melospiza melodia</i>		X	X	X	X	X
<b>MAMMALS</b>							
Opossum	<i>Didelphis marsupialis</i>	X	X	X	X	X	X
Trowbridge shrew	<i>Sorex trowbridgii</i>			X	X	X	
Vagrant shrew	<i>Sorex vagrans</i>	X	X				X
Shrew-mole	<i>Neurotrichus gibbsii</i>			X	X	X	X
Coast mole	<i>Scapanus orarius</i>	X	X	X		X	
Townsend's mole	<i>Scapanus townsendi</i>	X	X				
Little brown bat	<i>Myotis lucifugus</i>			X	X	X	X
California myotis	<i>Myotis californicus</i>			X	X	X	X
Yuma myotis	<i>Myotis yumanensis</i>		X	X	X	X	X
Silvery-haired bat	<i>Lasionycteris noctivagans</i>			X	X	X	X
Big brown bat	<i>Eptesicus fuscus</i>			X	X	X	X
Deer mouse	<i>Peromyscus maniculatus</i>	X	X	X	X	X	X
Townsend's meadow mouse	<i>Microtus townsendii</i>	X	X				
Oregon meadow mouse	<i>Microtus oregoni</i>	X	X	X	X	X	X
Norway rat	<i>Rattus norvegicus</i>	X	X				X
Black rat	<i>Rattus rattus</i>	X	X				X
House mouse	<i>Mus musculus</i>	X	X				
Mountain beaver	<i>Aplodontia rufa</i>			X	X	X	X
Muskrat	<i>Ondatra zibethicus</i>		X				X
Beaver	<i>Castor canadensis</i>						X
Townsend's chipmunk	<i>Eutamias townsendi</i>			X	X	X	
Douglas' squirrel	<i>Tamiasciurus douglasii</i>				X	X	
Eastern gray squirrel	<i>Sciurus carolinensis</i>			X	X	X	

Common Name	Scientific Name	Habitat					
		Herbaceous	Shrub	Deciduous	Coniferous	Mixed C/D	Riparian
Eastern cottontail	<i>Sylvilagus floridanus</i>	X	X				
Mink	<i>Mustela vison</i>						X
Long-tailed weasel	<i>Mustela frenata</i>		X	X	X	X	X
River otter	<i>Lutra canadensis</i>						X
Striped skunk	<i>Mephitis mephitis</i>		X	X		X	X
Raccoon	<i>Procyon lotor</i>			X	X	X	X
Coyote	<i>Canis latrans</i>	X	X	X	X	X	X
Black-tailed deer	<i>Odocoileus hemionus columbianus</i>		X	X	X	X	X
<b>AMPHIBIANS</b>							
Rough-skinned newt	<i>Taricha granulosa</i>			X	X	X	X
Pacific giant salamander	<i>Dicamptodon ensatus</i>				X	X	X
W. red-backed salamander	<i>Plethodon vehiculum</i>				X	X	X
Northwestern salamander	<i>Ambystoma gracile</i>				X	X	X
Long-toed salamander	<i>Ambystoma macrodactylum</i>			X	X	X	X
Ensatina	<i>Ensatina eschscholtzi</i>			X	X	X	X
Pacific treefrog	<i>Hyla regilla</i>		X	X	X	X	X
Red-legged frog	<i>Rana aurora</i>			X	X	X	X
Bullfrog	<i>Rana catesbeiana</i>						
Western toad	<i>Bufo boreas</i>			X	X	X	X
<b>REPTILES</b>							
N. alligator lizard	<i>Elgaria coerulea</i>		X		X		
Common garter snake	<i>Thamnophis sirtalis</i>	X	X	X	X	X	X
N. W. garter snake	<i>Thamnophis ordinoides</i>	X	X	X	X	X	

Source: Brown 1985, Guenther and Kucera 1978, Hunn 1982, Ingles 1965, Nussbaum et al. 1983, and Wahl and Paulson 1977.